

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT			1. CONTRACT ID CODE N/A		PAGE 1 OF PAGES 76		
2. AMENDMENT/MODIFICATION NO. 0008		3. EFFECTIVE DATE 28 JUN 02		4. REQUISITION/PURCHASE REQ. NO. N/A		5. PROJECT NO. (If applicable) SPEC. NO. 1182	
6. ISSUED BY		CODE		7. ADMINISTERED BY (If other than Item 6)		CODE	
DEPARTMENT OF THE ARMY U.S. ARMY ENGINEER DISTRICT, SACRAMENTO CORPS OF ENGINEERS 1325 J STREET SACRAMENTO, CALIFORNIA 95814-2922				DISTRICT ENGINEER U.S. ARMY ENGINEER DISTRICT, SACRAMENTO 1325 J STREET SACRAMENTO, CALIFORNIA 95814-2922 ATTN: CONTRACTING DIVISION			

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)		<div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 5px;">(✓)</div> <div style="border: 1px solid black; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">×</div> </div>	9A. AMENDMENT OF SOLICITATION NO. DACW05-02-B-0005		
			9B. DATED (SEE ITEM 11) 02 MAY 16		
			10A. MODIFICATION OF CONTRACTS/ORDER NO. N/A		
			10B. DATED (SEE ITEM 13) N/A		
CODE		FACILITY CODE			

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☒ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended, ☒ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing Items 8 and 15, and returning 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(✓)	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
GUADALUPE RIVER PROJECT, CONSTRUCTION CONTRACT 3A, PHASE 1
SAN JOSE, CALIFORNIA

2 ENCLS

- 1) REVISIONS: SF 1442 (2 PAGES), PRICING SCHEDULE (1 PAGE), 00700 (4 PAGES), 01270 (16 PAGES), 01500 (2 PAGES), 02541 (11 PAGES), 02560 (9 PAGES), 02811 (3 PAGES & ATTACHMENT), 02935 (3 PAGES), 02950 (17 PAGES) AND 13156 (8 PAGES).**
- 2) DRAWINGS: SHEETS 44B, 44C, 44D, 44G, 44H AND 44J.**

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)	
15B. CONTRACTOR/OFFEROR		16B. UNITED STATES OF AMERICA	
<div style="border-top: 1px solid black; text-align: center;">(Signature of person authorized to sign)</div>		<div style="border-top: 1px solid black; text-align: center;">BY (Signature of Contracting Officer)</div>	
15C. DATE SIGNED		16C. DATE SIGNED	

SOLICITATION, OFFER, AND AWARD <i>(Construction, Alteration, or Repair)</i>	1. SOLICITATION NO. DACW05-02-B-0005	2. TYPE OF SOLICITATION <input checked="checked" type="checkbox"/> SEALED BID (IFB) <input type="checkbox"/> NEGOTIATED (RFP)	3. DATE ISSUED 16-May-2002	PAGE OF PAGES 1 OF 202
IMPORTANT - The "offer" section on the reverse must be fully completed by offeror.				
4. CONTRACT NO.		5. REQUISITION/PURCHASE REQUEST NO.		6. PROJECT NO.
7. ISSUED BY DEPARTMENT OF THE ARMY CORPS OF ENGRS, SACRAMENTO 1325 J STREET SACRAMENTO CA 95814-2922 TEL: FAX:		CODE DACW05	8. ADDRESS OFFER TO <i>(If Other Than Item 7)</i> CODE See Item 7 TEL: FAX:	
9. FOR INFORMATION CALL:		A. NAME COLLEEN BROUSSARD-PERRY		B. TELEPHONE NO. <i>(Include area code)</i> <i>(NO COLLECT CALLS)</i> 916 557-5232
SOLICITATION				
NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".				
10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS <i>(Title, identifying no., date):</i> GUADALUPE RIVER PROJECT, CONTRACT 3A, PHASE I SAN JOSE, CALIFORNIA SPECIFICATION NO. 1182 DESCRIPTION: CONSTRUCTION OF FLOOD CONTROL AND ENVIRONMENTAL RESTORATION FEATURES ALONG THE GUADALUPE RIVER BETWEEN SANTA CLARA STREET AND UPRR BRIDGE NO. 4 (CE -LINE STATION 20+00) IN SAN JOSE. CALIFORNIA. Any Contract awarded under this solicitation will be made pursuant to Public Law 100-656, Small Business Competitiveness Demonstration Program. See DD Form 1707, Block 6 for unrestricted/set-aside information. ESTIMATED COST RANGE OF PROJECT: \$25,000,000 - \$100,000,000				
11. The Contractor shall begin performance within <u>10</u> calendar days and complete it within <u>1,277</u> calendar days after receiving <input type="checkbox"/> award, <input checked="checked" type="checkbox"/> notice to proceed. This performance period is <input checked="checked" type="checkbox"/> mandatory, <input type="checkbox"/> negotiable. <i>(See FAR 52.211-10 .)</i>				
12 A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? <i>(If "YES," indicate within how many calendar days after award in Item 12B.)</i> <input checked="checked" type="checkbox"/> YES <input type="checkbox"/> NO			12B. CALENDAR DAYS 10	
13. ADDITIONAL SOLICITATION REQUIREMENTS: A. Sealed offers in original and <u>0</u> copies to perform the work required are due at the place specified in Item 8 by <u>13:00:00</u> <i>(hour)</i> local time <u>7/10/02</u> <i>(date)</i> . If this is a sealed bid solicitation, offers must be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due. B. An offer guarantee <input checked="checked" type="checkbox"/> is, <input type="checkbox"/> is not required. C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference. D. Offers providing less than <u>60</u> calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.				

SOLICITATION, OFFER, AND AWARD*(Construction, Alteration, or Repair)***OFFER (Must be fully completed by offeror)**14. NAME AND ADDRESS OF OFFEROR *(Include ZIP Code)*15. TELEPHONE NO. *(Include area code)*16. REMITTANCE ADDRESS *(Include only if different than Item 14)*

CODE

FACILITY CODE

17. The offeror agrees to perform the work required at the prices specified below in strict accordance with the terms of this solicitation, if this offer is accepted by the Government in writing within _____ calendar days after the date offers are due. *(Insert any number equal to or greater than the minimum requirements stated in Item 13D. Failure to insert any number means the offeror accepts the minimum in Item 13D.)*

AMOUNTS

SEE SCHEDULE OF PRICES

18. The offeror agrees to furnish any required performance and payment bonds.

19. ACKNOWLEDGMENT OF AMENDMENTS*(The offeror acknowledges receipt of amendments to the solicitation -- give number and date of each)*

AMENDMENT NO.

DATE

20A. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN
OFFER *(Type or print)*

20B. SIGNATURE

20C. OFFER DATE

AWARD (To be completed by Government)

21. ITEMS ACCEPTED:

SEE SCHEDULE

22. AMOUNT

23. ACCOUNTING AND APPROPRIATION DATA

24. SUBMIT INVOICES TO ADDRESS SHOWN
*(4 copies unless otherwise specified)***ITEM**

25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO

☐ 10 U.S.C. 2304(c)☐ 41 U.S.C. 253(c)

26. ADMINISTERED BY

CODE

27. PAYMENT WILL BE MADE BY

CODE

CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE

☐ 28. NEGOTIATED AGREEMENT *(Contractor is required to sign this document and return _____ copies to issuing office.)* Contractor agrees to furnish and deliver all items or perform all work, requisitions identified on this form and any continuation sheets for the consideration stated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) the clauses, representations, certifications, and specifications or incorporated by reference in or attached to this contract.

☐ 29. AWARD *(Contractor is not required to sign this document.)*

Your offer on this solicitation, is hereby accepted as to the items listed. This award consummates the contract, which consists of (a) the Government solicitation and your offer, and (b) this contract award. No further contractual document is necessary.

30A. NAME AND TITLE OF CONTRACTOR OR PERSON
TO SIGN *(Type or print)*31A. NAME OF CONTRACTING OFFICER *(Type or print)*

30B. SIGNATURE

30C. DATE

31B. UNITED STATES OF AMERICA
BY

31C. AWARD DATE

(2) The Contractor's knowledge of the reasons for the subcontractor being on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

(3) The compelling reason(s) for doing business with the subcontractor notwithstanding its inclusion on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

(4) The systems and procedures the Contractor has established to ensure that it is fully protecting the Government's interests when dealing with such subcontractor in view of the specific basis for the party's debarment, suspension, or proposed debarment.

(End of clause)

52.211-10 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984)

The Contractor shall be required to (a) commence work under this contract within 10 calendar days after the date the Contractor receives the notice to proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use not later than **1,277** calendar days after receipt of notice to proceed. The time stated for completion shall include final cleanup of the premises.

(End of clause)

52.211-12 LIQUIDATED DAMAGES--CONSTRUCTION (SEP 2000)

(a) If the Contractor fails to complete the work within the time specified in the contract, the Contractor shall pay liquidated damages to the Government in the amount of \$2,060 for each calendar day of delay until the work is completed or accepted.

(b) If the Government terminates the Contractor's right to proceed, liquidated damages will continue to accrue until the work is completed. These liquidated damages are in addition to excess costs of repurchase under the Termination clause.

(End of clause)

~~52.211-13 TIME EXTENSIONS (SEP 2000)~~

~~Time extensions for contract changes will depend upon the extent, if any, by which the changes cause delay in the completion of the various elements of construction. The change order granting the time extension may provide that the contract completion date will be extended only for those specific elements related to the changed work and that the remaining contract completion dates for all other portions of the work will not be altered. The change order also may provide an equitable readjustment of liquidated damages under the new completion schedule.~~

~~(End of clause)~~

52.211-18 VARIATION IN ESTIMATED QUANTITY (APR 1984)

Construction material			
description	Unit of measure	Quantity	Price (dollars) \1\

Item 1:			
Foreign construction material
Domestic construction material
Item 2:			
Foreign construction material
Domestic construction material

 \1\ Include all delivery costs to the construction site and any applicable duty (whether or not a duty-free entry certificate is issued).
 List name, address, telephone number, and contact for suppliers surveyed.
 Attach copy of response; if oral, attach summary.
 Include other applicable supporting information.

(End of clause)

52.225-13 RESTRICTIONS ON CERTAIN FOREIGN PURCHASES (JUL 2000)

(a) The Contractor shall not acquire, for use in the performance of this contract, any supplies or services originating from sources within, or that were located in or transported from or through, countries whose products are banned from importation into the United States under regulations of the Office of Foreign Assets Control, Department of the Treasury. Those countries are Cuba, Iran, Iraq, Libya, North Korea, Sudan, the territory of Afghanistan controlled by the Taliban, and Serbia (excluding the territory of Kosovo).

(b) The Contractor shall not acquire for use in the performance of this contract any supplies or services from entities controlled by the government of Iraq.

(c) The Contractor shall insert this clause, including this paragraph (c), in all subcontracts.

(End of clause)

~~52.226-1 UTILIZATION OF INDIAN ORGANIZATIONS AND INDIAN-OWNED ECONOMIC ENTERPRISES (JUN 2000)~~

~~(a) Definitions. As used in this clause:~~

~~"Indian" means any person who is a member of any Indian tribe, band, group, pueblo or community that is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs (BIA) in accordance with 25 U.S.C. 1452(c) and any ``Native'' as defined in the Alaska Native Claims Settlement Act (43 U.S.C. 1601).~~

~~"Indian organization" means the governing body of any Indian tribe or entity established or recognized by the governing body of an Indian tribe for the purposes of 25 U.S.C., chapter 17.~~

~~"Indian-owned economic enterprise" means any Indian-owned (as determined by the Secretary of the Interior) commercial, industrial, or business activity established or organized for the purpose of profit, provided that Indian ownership constitute a not less than 51 percent of the enterprise.~~

~~"Indian tribe" means any Indian tribe, band, group, pueblo or community, including native villages and native groups (including corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, that is recognized by the Federal Government as eligible for services from BIA in accordance with 25 U.S.C. 1542(c).~~

~~"Interested party" means a prime contractor or an actual or prospective offeror whose direct economic interest would be affected by the award of a subcontract or by the failure to award a subcontract.~~

~~(b) The Contractor shall use its best efforts to give Indian organizations and Indian-owned economic enterprises (25 U.S.C. 1544) the maximum practicable opportunity to participate in the subcontracts it awards to the fullest extent consistent with efficient performance of its contract.~~

~~(1) The Contracting Officer and the Contractor, acting in good faith, may rely on the representation of an Indian organization or Indian-owned economic enterprise as to its eligibility, unless an interested party challenges its status or the Contracting Officer has independent reason to question that status. In the event of a challenge to the representation of a subcontractor, the Contracting Officer will refer the matter to the U.S. Department of the Interior, Bureau of Indian Affairs (BIA), Attn: Chief, Division of Contracting and Grants Administration, 1849 C Street, NW., MS 2626-MIB, Washington, DC 20240-4000.~~

~~The BIA will determine the eligibility and notify the Contracting Officer. No incentive payment will be made within 50 working days of subcontract award or while a challenge is pending. If a subcontractor is determined to be an ineligible participant, no incentive payment will be made under the Indian Incentive Program.~~

~~(2) The Contractor may request an adjustment under the Indian Incentive Program to the following:~~

~~(i) The estimated cost of a cost-type contract.~~

~~(ii) The target cost of a cost-plus-incentive-fee prime contract.~~

~~(iii) The target cost and ceiling price of a fixed-price incentive prime contract.~~

~~(iv) The price of a firm-fixed-price prime contract.~~

~~(3) The amount of the adjustment to the prime contract is 5 percent of the estimated cost, target cost, or firm-fixed-price included in the subcontract initially awarded to the Indian organization or Indian-owned economic enterprise.~~

~~(4) The Contractor has the burden of proving the amount claimed and must assert its request for an adjustment prior to completion of contract performance.~~

~~(c) The Contracting Officer, subject to the terms and conditions of the contract and the availability of funds, will authorize an incentive payment of 5 percent of the amount paid to the subcontractor. The Contracting Officer will seek funding in accordance with agency procedures.~~

~~(End of clause)~~

52.227-1 AUTHORIZATION AND CONSENT (JUL 1995)

(a) The Government authorizes and consents to all use and manufacture, in performing this contract or any subcontract at any tier, of any invention described in and covered by a United States patent (1) embodied in the structure or composition of any article the delivery of which is accepted by the Government under this contract or (2) used in machinery, tools, or methods whose use necessarily results from compliance by the Contractor or a subcontractor with (i) specifications or written provisions forming a part of this contract or (ii) specific written instructions given by the Contracting Officer directing the manner of performance. The entire liability to the Government for infringement of a patent of the United States shall be determined solely by the provisions of the indemnity clause, if any, included in this contract or any subcontract hereunder (including any lower-tier subcontract), and the Government assumes liability for all other infringement to the extent of the authorization and consent hereinabove granted.

(b) The Contractor agrees to include, and require inclusion of, this clause, suitably modified to identify the parties, in all subcontracts at any tier for supplies or services (including construction, architect-engineer services, and materials, supplies, models, samples, and design or testing services expected to exceed the simplified acquisition threshold (however, omission of this clause from any subcontract, including those at or below the simplified acquisition threshold, does not affect this authorization and consent.)

(End of clause)

52.227-4 PATENT INDEMNITY--CONSTRUCTION CONTRACTS (APR 1984)

Except as otherwise provided, the Contractor agrees to indemnify the Government and its officers, agents, and employees against liability, including costs and expenses, for infringement upon any United States patent (except a patent issued upon an application that is now or may hereafter be withheld from issue pursuant to a Secrecy Order under 35 U.S.C. 181) arising out of performing this contract or out of the use or disposal by or for the account of the Government of supplies furnished or work performed under this

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SECTION 01270

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 SUMMARY

Work will be paid for at Unit and Lump Sum prices listed in the Pricing Schedule. It is the responsibility of the Contractor to make a thorough examination of the Contract Documents, the available data and information and the site conditions to determine the scope of work included in bid items listed in Pricing Schedule. The payment of said prices will constitute complete compensation for all work shown on the Drawings and provided in the Specifications or other Contract Documents, and for all costs of accepting the general risks and liabilities inherent in the Work and shall include, but not be limited to, compensation for overhead, profit, materials, equipment and labor and services, and performing all work required to accomplish and complete the work specified under each item and all other work required by the Contract Documents.

1.2 SCHEDULE OF VALUES

No later than 10 days after notice as apparent successful contractor, the apparent successful contractor shall submit, for approval and in a form directed by or acceptable to the Contracting Officer, a complete schedule of the values of the various portions of the Work, including quantities and unit prices aggregating the Contract Price (except in cases and to the extent that accepted unit prices form the basis for payment). The schedule shall subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction, to coordinate with the Project Schedule required under Section 01320, and to form the basis for possible change orders or field orders. The schedule shall be supported by such data to substantiate its correctness as the Contracting Officer may require. Each item in the Schedule of Values shall include its proper share of overhead and profit. An unbalanced breakdown providing for overpayment on items of the Work which will be performed first will not be approved. The Schedule of Values, when approved by the Contracting Officer and after execution of a Contract Agreement, shall be used only as a basis for the Contractor's applications for payment and not for additions to or deductions from the Contract Price.

When directed by the Contracting Officer, the apparent low bidder or Contractor shall submit for approval, a revised Schedule of Values coordinated to revised progress schedules made in accordance with the Contract Documents.

1.3 LUMP SUMS

The quantities of work performed for items bid on a lump sum basis will not be measured except for the purpose of determining reasonable progress payments. Progress payments will be made based on the approved Schedule of Values.

1.4 UNIT PRICES

For items bid on a unit price basis, the estimated quantities given in the Bid Form are approximate and are given only as a basis for comparison of bids. The Government does not expressly, nor by implication, warrant that the actual amount of work will correspond to the estimated quantities. The

Government reserves the right to increase or decrease the amount of work performed under unit price Bid Items, or to omit such work altogether. No adjustments to the Contract unit prices will be made, nor will any claim for loss of anticipated profit be allowed on account of any such increase, decrease, or omission except as provided for in FAR 52.211-18 "Variation in Estimated Quantity". Payment for unit price Bid Items will be made at the Contract unit prices stated in the Contractor's Bid, measured in accordance with specified methods of measurement as stated in this section.

1.5 MEASUREMENT OF QUANTITIES

1.5.1 Unit Prices

The quantity of work to be paid for under any item for which a unit price is specified in the Description of Bid Items shall be the actual amount of units of work satisfactorily completed in accordance with the Contract Documents, and as directed by the Contracting Officer. No payment will be made for work done outside of the prescribed or ordered limits.

1.5.2 Measurements and Payment Quantities

Contractor shall take all measurements and compute all payment quantities. The Contracting Officer will verify and approve measurements and quantities. Measurements and computations shall be made by methods approved by the Contracting Officer for the class of work measured.

1.5.3 United States Standard Measure

Contractor shall measure all work to be paid for on a unit price basis in accordance with United States Standard Measures except as otherwise specified. A ton shall consist of 2,000 pounds avoirdupois.

1.5.4 Material Paid for By Weight

Material paid for by weight shall be weighed on sealed scales certified by and regularly inspected by an inspector of the state in which the scale is located.

1.5.5 Material Paid for By Volume

When material is to be measured and paid for on a volume basis and it is impractical to determine the volume by the method of measurement specified in a Bid Item, or when requested by Contractor in writing and approved by Contracting Officer in writing, the material will be weighed in accordance with the requirements specified for weight measurement. Such weights will be converted to volume measurement for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by Contracting Officer and shall be agreed to by Contractor before such method of measurement of pay quantities will be adopted.

1.5.6 Metering Devices

When metering devices are required in the Specifications or are used to measure the quantity of liquids used in the Work, the metering devices shall be inspected and tested for accuracy at the Contractor's expense as often as Contracting Officer may deem necessary.

1.5.7 Compensation for Measurement

Full compensation for all expense involved in conforming to the requirements for measuring and weighing materials shall be considered as included in the unit prices paid for the materials being

measured or weighed and no additional compensation will be allowed therefor.

1.5.8 Non-Payment for Rejected Products.

A. Payment will not be made for any of the following:

1. Materials wasted.
2. Materials determined as unacceptable before or after placement.
3. Materials not completely unloaded from the transporting vehicle.
4. Materials placed beyond the lines, grades and levels of the required Work (as indicated in the Contract Documents or as established by the Contracting Officer).
5. Materials remaining on hand after completion of the Work.
6. Loading, hauling, handling, and disposing of rejected materials.

B. Materials described above (items 1 through 6) shall not be included in final total quantities.

1.6 SCOPE OF PAYMENT

1.6.1 General

All of the Work of the Contract is included in the Pricing Schedule.

1.6.2 Division 0 and Division 1

No separate payment will be made for any of the requirements of the General Conditions, the Supplementary Conditions, nor for any of the work specified in Division 1 Sections of the Specifications. The cost thereof will be considered as included in the prices paid for the various contract items included in the Pricing Schedule. *Indirect costs shall be distributed over all of the items in the Pricing Schedule.*

1.6.3 Full Compensation

Payment for all items shall include full compensation for all labor, materials, tools, equipment, plant, transportation services and incidentals; application or installation of each item of Work; overhead and profit and incidentals necessary to the completed Work and for performing all work contemplated and embraced under the Contract; and for completing the work according to the Contract Documents. Neither the payment of any estimate nor of any retained percentage shall relieve the Contractor of any obligation to make good any defective work or material.

1.6.4 Limits of Payment

Where Limit of Payment lines are shown on the Drawings, these lines show the extent of measurement for payment. All quantities of work performed outside those lines unless otherwise specified or directed by the Contracting Officer will not be paid for.

1.6.5 Loss of Anticipated Profit

No compensation will be made in any case for loss of anticipated profits.

1.7 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an

"FIO" designation are for information only. The following shall be submitted in accordance with Section 01330; SUBMITTAL PROCEDURES:

SD-07 Schedules

Schedule of Values; GA

Submit Schedule of Values as required herein. Schedule will be used to measure the progress of the work, and to provide the basis for approval progress payment request containing lump sum bid items.

1.8 DESCRIPTION OF BID ITEMS

The Pricing Schedule is presented to indicate major categories of work for the purposes of comparative bid analyses and payment breakdown for monthly progress payments. The items in the Pricing Schedule are not exhaustive and complete descriptions of the work categories. The Contractor shall determine, and include in the prices, did all materials, labor, equipment and incidentals for doing all work to complete all Contract work as shown and specified.

1.9 PRICING SCHEDULE

Bid Item 1 - Mobilization and Demobilization (Lump Sum):

1. ~~*This item Mobilization*~~ shall consist of all work required to set up the construction site and prepare for construction ***and demobilization at the completion of the Work of all plant and equipment.*** Mobilization shall include mobilization of general equipment and plant onto the Site, procurement of required bonds and insurance, field offices, ***general*** construction facilities, ~~and temporary controls including erosion control seeding and fabric, temporary fencing, temporary utilities, temporary traffic control systems, and acquisition of equipment, supplies, and incidentals necessary for starting and carrying out the Work.~~ This bid item does not cover specialized equipment and plant covered under specific Bid Items. ~~Incidentals for starting and carrying out the Work include salaries of on site office staff, transportation, per diem, CPM scheduling, submittals, permits, fees, insurance, bonds, quality control, testing and lab, Health and Safety training, home-office support, heat, electricity, utilities, other Division 1 items unless specifically covered elsewhere, and all other work not included or paid for as subsidiary work or directly under items.~~
2. ~~The value of the amount entered under lump sum Bid Item No. 1 shall not be greater than 5% of the total Bid Price.~~
3. ~~The first mobilization payment will be made after the following items of work are received and/or completed:~~
 - a. ~~An approved construction CPM schedule and the approved Schedule of Values of the Work~~
 - b. ~~Transportation of plant and equipment to the site required for the first month's operations.~~
 - c. ~~Construction of parking areas, field offices and facilities and construction yards.~~
 - d. ~~Setup of required field offices with equipment, furnishings and utility, and all required facilities are ready for use.~~

- ~~e. Required permits, bonds, and insurance certificates.~~
 - ~~f. A fire protection plan and system.~~
 - ~~g. A health and safety program as specified in Section 01351, SAFETY, HEALTH, AND EMERGENCY RESPONSE.~~
 - ~~h. Contractor's superintendent on-site and construction work has commenced.~~
 - ~~i. Submittals as required by Section 01330, SUBMITTAL PROCEDURES.~~
- ~~4. Payment of lump sum Bid Item No. 1 will be according to the following schedule:~~
- ~~a. Payment No. 1 in the amount of 25% of lump sum Bid Item No. 1 shall occur according to Paragraph 3 above.~~
 - ~~b. Payment No. 2 in the amount of 25% of lump sum Bid Item No. 1 shall occur after the Contractor has begun installation of the excavation dewatering system necessary to perform the work as required by the Contract Documents. This includes any and all equipment necessary to treat and discharge water.~~
 - ~~c. Payment No. 3 in the amount of 25% of lump sum Bid Item No. 1 shall occur after the Contractor has mobilized plant and equipment for excavation for the culvert construction including shoring, and excavation has started.~~
 - ~~d. The remaining balance of lump sum Bid Item No. 1 shall be paid after culvert construction has started.~~

Bid Item 2 - NOT USED

Bid Item 2 3 – Demolition (Lump Sum): Bid Item covers all work associated with removing and disposing of existing structures and debris within the work area and as shown on the Drawings, except the demolition of Old Julian Bridge. The bid item includes, but is not limited to, cutting shrubs, bushes, and other vegetation; grubbing stumps; and removing stumps, grass, shrubs, bushes, other vegetation, and demolition of pavements and sidewalks, fences, manholes, drop inlets, pipes, water wells and miscellaneous concrete, and all additional demolition work called for in the Contract Documents.

Payment will be made on a Lump Sum basis.

Bid Item 3 4 - Permanent Fencing (Linear Foot): Bid Item covers all work associated with installation of permanent fencing and gates, and connection to existing fencing, all as specified in the Contract Documents. The bid item includes, but is not limited to, fencing, gates, posts, braces and top rails, accessories and padlocks.

Payment will be made based on the linear feet of fencing, including gates, installed in accordance with the Contract Documents and accepted by the Contracting Officer.

Bid Item 4 5 - Old Julian Street Bridge Demolition (Lump Sum): Bid Item covers all work associated with the demolition and disposal of the Old Julian Street Bridge and the restoration of the river channel within the limits of work across the channel. The bid item

includes, but is not limited to, the temporary diversion of the river, complying with the general and environmental requirements for work within the channel limits as specified in the Contract Documents, demolition and disposal of the bridge abutments, deck and beams, and the piers.

Payment will be made on a lump sum basis.

Bid Item 6 - NOT USED

Bid Item 5 7 - Dewatering and Surface Water Control (Lump Sum): Bid Item covers all work associated with the design, selection, installation, operation, maintenance, and all excavation dewatering required by the Contract Documents or as necessary to perform the Work. The work includes sampling and measurement of the contamination levels of the Wastewater as specified in the Waste Discharge Requirements of Order No. 99-051, General Permit under the National Pollutant Discharge Elimination System No. CAG912003, for Discharge or Reuse of Extracted and Treated Groundwater Resulting from the Cleanup of Groundwater Polluted by Volatile Organic Compounds as required by the Contract Documents. Treatment of contaminated water is covered by Bid Item 6 8. The bid item also includes construction, maintenance, and removal of temporary and protective works for diversion and control of all surface water from any source necessary to perform the Work.

Payment will be made on a lump sum basis.

Bid Item 6 8 - Water Treatment:

Bid Item 6a 8a - Wastewater Treatment System (Lump Sum): Bid Item covers all work associated with providing, mobilizing and demobilizing, and maintenance of a Wastewater Treatment System including NPDES permit fee as required by the Contract Documents which is capable of meeting the Wastewater Discharge Requirements specified in the Contract Documents. The System shall be mobilized and fully functional prior beginning wastewater discharge and shall be kept on site for the duration of the Work at least through to Substantial Completion, unless otherwise agreed to by the Contracting Officer.

Payment will be made on a lump sum basis.

Bid Item 6b 8b - Operation: Bid Item covers all work associated with the operation of the Wastewater Treatment System, including but not limited to personnel, analytical tests, and periodic NPDES reports, power and replacement of consumable items except for as carbon filters.

Payment will be made on a per-week (7 day) basis. Partial weeks will be paid at the weekly rate. Measurement for payment will be made considering the need for operation of the Wastewater Treatment System, as determined by the Contracting Officer, based upon the contamination levels measured in the Wastewater influent.

Bid Item 6c 8c - Carbon Filters (Ton): Bid Item covers the costs of replacement of

carbon filter consumed during operation of the Wastewater Treatment System.

Payment will be made based on the weight, measured in units of Tons, of carbon filter actually consumed and replaced in the Wastewater Treatment System as approved by the Contracting Officer.

Bid Item 7 9 – Excavation (Cubic Yard): This Bid Item covers all work associated with the design, supply, installation and testing of excavation shoring and bracing systems including the temporary steel structure and internal bracing associated with the culvert termination bulkhead; characterization of soils for disposal, excavation for the culvert, retaining walls, weirs, aprons, inlet structures, including all excavation associated with the installation of the gabion terraces and walls and Cellular Concrete Mats; all work associated with PG&E Utility Relocations, and all other miscellaneous excavation to the lines and grades shown in the Drawings. The bid item does not include the excavation and shoring for the construction of the sewer siphon crossings at St John Street and Old Julian Street nor does it include ~~other~~ excavations and associated shoring for storm drains, sewers, and other utilities.

Payment will be full compensation for shoring, instrumentation, instrumentation monitoring, excavation, removing materials from excavations, hauling to temporary stockpile if material is to be reused or characterized on site, soil characterization, hauling to point of final disposal, disposal costs for non-hazardous materials, and preparation of the subgrade as necessary to begin construction of the culvert and other structures and facilities.

Payment will be made the basis of in-place cubic yards. Measurement for payment will be made based upon the difference between the original ground surface topography and the accepted excavated surface topography, except that no payment will be made for culvert excavation outside of the vertical limits defined by the outside face of the exterior walls of the box culvert.

Bid Item 10 – NOT USED

Bid Item 8 11 – Special Soil Handling and Disposal

Bid Item 8a 11a –Hazardous Waste (Tons): Bid Item covers all work associated with handling, transportation to and disposal at an approved waste treatment or disposal facility or facilities of all Hazardous Waste excavated from within the limits of “Known Contaminated Soil” as shown on the Drawings. Excavation of the soil is covered under Bid Item 7 9. Materials contaminated by the Contractor’s operations, will be the Contractor’s responsibility and will not be measured or paid for by the Government.

Payment will be made on the basis of Tons of soil disposed of. Measurement for payment will be determined on the basis of weigh tickets issued by the approved disposal facility. If the Contractor elects to stabilize and recycle waste materials, measurement will be by scales conforming to the requirements specified herein. Payment under this bid item will be contingent upon the prior written agreement of the Contracting Officer that the soil test results for the materials to be disposed of are consistent the hazardous waste classification

assigned to the materials.

Bid Item ~~8b 11b~~ – Designated Waste (Tons): Bid Item covers all work associated with the handling, the transportation to and disposal at an approved waste treatment or disposal facility or facilities of Designated Waste excavated from within the limits of “Known Contaminated Soil” as shown on the Drawings. Excavation of the soil is covered under Bid Item 7 9. Materials contaminated by the Contractor’s operations, will be the Contractor’s responsibility and will not be measured or paid for by the Government.

Payment will be made on the basis of Tons of Designated Waste material disposed of. Measurement for payment will be determined on the basis of weigh tickets issued by the disposal facility. If the Contractor elects to stabilize and recycle waste materials, measurement will be by scales conforming to the requirements specified herein. Payment under this bid item will be contingent upon the prior written agreement of the Contracting Officer that the soil test results for the materials to be disposed of are consistent the hazardous waste classification assigned to the materials.

Bid Item ~~9 12~~ – Concrete Box Culverts including Inlet Structures (Lump Sum): This Bid Item covers all work associated with the formwork, reinforcement, and cast-in-place concrete for the single and twin sections of culvert, the inlet walls and slab. Work includes, but is not limited to, all work associated with waterstops, expansion and control joints, decorative form liners, geosynthetic wall drains, sand filter and gravel drain layers, crushed rock, ~~membrane waterproofing~~ **geosynthetic clay liner**, airvent grates and associated fittings, miscellaneous metal, and all components required to complete the Culvert, Santa Clara Retaining Wall No. 2, West Santa Clara Plaza except decorative paving, Santa Clara Retaining Wall No. 3, Santa Clara Retaining Wall No. 4, Santa Clara inlet back wall, front wall, weir and slab, Santa Clara Inlet Apron, Santa Clara Inlet Sediment Training Wall, St. John Retaining Wall No. 6, St. John inlet front wall, back wall, weir, and slab, St. John Inlet Apron, and St. John Inlet Sediment Training Wall as required by the Contract Documents.

Payment will be made on a Lump Sum basis.

Bid Item ~~10 13~~ – Backfill (Cubic Yard): This Bid Item covers all work associated with Backfill. This item includes, but is not limited to, the procurement, hauling, placement, moisture control, compaction and construction control testing.

Payment will be made on the basis of in-place compacted cubic yards. Measurement will be made based upon the difference between the accepted excavated surface topography and the accepted final backfill surface topography except that no payment will be made for backfill placed outside of the vertical limits defined by the outside face of the exterior walls of the culvert and below the original ground surface.

Bid Item ~~11 14~~ – New Julian Street Closure and Restoration (Lump Sum): This Bid Item covers all work associated with the partial closure of New Julian Street to allow construction of the box culvert across the street and with the subsequent reconstruction of New Julian Street. Closure includes, but is not limited to, **traffic control, including**

barricades, temporary traffic lighting, and signage and demolition and removal of the street surfacing, sidewalks and median, including but not limited to temporary removal of the traffic control lighting system and existing street lighting, including power cables, and protection of traffic signal interface cable and fiber optic cables, all as required by the Contract Documents. ~~All temporary traffic control including but not limited to, barricades, temporary traffic lighting, pavement striping, and signage is covered in Bid Item 1.~~ Reconstruction of New Julian Street includes, but is not limited to, (i) construction of the roadway including aggregate base, asphalt concrete, pavement marking and median reconstruction, (ii) replacement of side walks, and (iii) permanent traffic control lights and street lighting including power connection.

Payment will be made on a lump sum basis.

Bid Item 12 15 – Saint John Street Demolition and Restoration (Lump Sum): Bid Item covers all work associated with the closure of Saint John Street to allow construction of the box culvert across the street, and includes the subsequent reconstruction of Saint John Street. Closure includes, but is not limited to, ***traffic control, including barricades, temporary traffic lighting, and signage*** and demolition and removal of the street surfacing, sidewalks and median, including but not limited to temporary removal of the existing street lighting, including power cables, all as required by the Contract Documents. ~~All temporary traffic control including but not limited to, barricades, temporary traffic lighting, pavement striping, and signage is covered in Bid Item 1.~~ Reconstruction of Saint John Street includes, but is not limited to, construction of the roadway including aggregate base, utility conduit encasements, asphalt concrete, pavement marking, placement of reflective depth markers, street lighting including power connection and replacement of side walks.

Payment will be made on a Lump Sum basis.

Bid Item 13 16 – Sobrato Property Restoration (Lump Sum): Bid Item covers all Work associated with the restoration of the Sobrato property parking area as required by the Contract Documents. Demolition of existing facilities on Sobrato property is covered under Bid Item 2 3. Work includes, but is not limited to, construction and removal of temporary access road and restoration of Sobrato property including rough and fine grading, subgrade preparation, aggregate base, asphalt concrete paving, vehicular and pedestrian accent paving, vehicular concrete paving, concrete bands, surface markings and striping, lighting, landscaping, irrigation and subsurface drainage including but not limited to excavation and backfill, reinforced concrete pipe, storm drain manholes, drainage inlets, flap gate boxes and connection to existing pipes and to the box culvert, ***and maintenance and warranty of irrigation and landscaping for 12 months after completion of restoration.***

Payment will be made on a Lump Sum basis.

Bid Item 14 17 – Saint John Street Sanitary Sewer (Lump Sum): Bid item covers all work associated with construction of the Sanitary Sewer siphon at Saint John Street. The work includes, but is not limited to, ***traffic control***, shoring and excavation for the

construction of the siphon, diversion of sewer flows, construction of the siphon including the inlet and outlet structures, pipes and connections to existing Sanitary Sewer Manholes, and backfill all as required by the Contract Documents. ~~All temporary traffic control including but not limited to, barricades, temporary traffic lighting, pavement striping and signage is covered in Bid Item 1.~~

Payment will be made on a Lump Sum basis.

Bid Item 15 18 – Old Julian Street Sanitary Sewer (Lump Sum): Bid Item covers all work associated with construction of the Sanitary Sewer siphon at Old Julian Street. The work includes, but is not limited to, shoring and excavation for the construction of the siphon, diversion of sewer flows, construction of the siphon including the inlet and outlet structures, pipes and connections to existing Sanitary Sewer Manholes, and backfill all as required by the Contract Documents.

Payment will be made on a Lump Sum basis.

Bid Item 16 19 – Side Drains 1 through 3 and Temporary Outlet (Lump Sum): Bid Item covers all work associated with the construction of Side Drains Numbers 1, 1A, 2, 3, and Temporary Outlet required by the Contract Documents. Item work includes, but is not limited to, excavation, reinforced concrete pipe, storm drain manholes, connection to the box culvert, rip rap and filter fabric for temporary outlet, backfill and all other related work as required by the Contract Documents.

Payment will be made on a lump sum basis.

Bid Item 17 20 – Cellular Concrete Mat (Square Yard): Bid Item covers all work associated with the construction of Cellular Concrete Mats (CCM) at the inlet. Excavation and subgrade preparation are covered in Bid Item 7 9. The work includes, but is not limited to CCM, earth anchors, connections to adjacent structures, filter fabric, gravel drain, low flow channel conform walls and weirs and the upstream transition trench cobbles, stone protection, boulders for instream cover, concrete backfill, in channel work at USGS weir including demolition, backfill, filter fabric, and rip rap placement as required by the Contract Documents.

Payment will be made on the basis of square yards of CCM placed and approved.

Bid Item 18 21 – Gabions (Cubic Yard): Bid Item covers all work and materials associated with the construction of gabion walls and the gabion mattresses for the terrace walls as required by the Contract Documents.

Payment will be made on a cubic yard basis of completed gabion baskets. Measurement will be the nominal dimension of the completed gabion wire baskets.

Bid Item 19 22 – Crushed Rock (Ton): Bid Item covers all work associated with the construction of the crushed rock base course beneath the gabion walls, terrace walls and riverwalk as required by the Contract Documents. Excavation and subgrade preparation is covered in Bid Item 7 9.

Payment will be made the basis of Tons of Crushed Rock material placed and accepted by the Contracting Officer. Measurement for payment will be determined on the basis of weigh tickets issued by the crushed rock supplier.

Bid Item 20 23 – Type 1 Filter Fabric (Square Yard): Bid Item covers all work associated with the filter fabric (Type 1) beneath crushed rock and beneath the gabion mattresses behind the Terrace walls as required by the Contract Documents.

Payment will be made on a square yard basis. Measurement for payment will be the area actually covered in accordance with the Contract Documents and which the Contracting Officer has approved.

Bid Item 21 24 – Terrace Wall Concrete (Cubic Yard): Bid Item covers all work associated with the concrete construction for the Terrace Walls on the east side of the channel north of West Santa Clara Street. Work includes but is not limited to the formwork, reinforcement, drain pipe, and cast-in-place concrete as required by the Contract Documents.

Payment will be made on a Cubic Yard basis.

Bid Item 25 – NOT USED

Bid Item 26 – NOT USED

Bid Item 22 27 – Drilled Pier Retaining Walls (Lump Sum): Bid Item covers all work, associated with construction of Santa Clara Street Retaining Wall No. 5 and Santa Clara Wingwall Retaining Wall No. 1. Excavation is covered in Bid Item 7 9. Item includes, but is not limited to, drilled shafts, concrete facing, shotcrete facing, wall to shaft connection, wall drains, wall rail, and sidewalk.

Payment will be made on a Lump Sum basis.

Bid Item 23 28 – Riverwalk/Maintenance Road (Linear Foot): Bid Item covers all work associated with construction of the Riverwalk/Maintenance Roads. Excavation is covered in Bid Item 7 9. Item includes, but is not limited to, subgrade preparation, aggregate base, bituminous surface course, bituminous prime coat and tack coat, concrete bands and wood headers, sidewalk ramps and driveways, curbs and gutters, and pavement markings, and swing gates.

Payment will be made on the basis of Linear Feet of River Walk Path installed in accordance with the Contract Documents and accepted by the Contracting Officer. Measurement for payment will be measured along the Road centerline.

Bid Item 24 29 – Riverwalk Stairs (Lump Sum): Bid Item covers all work associated with construction of the stairs at Santa Clara Street, as required by the Contract Documents. Excavation is covered in Bid Item 7 9. Item includes, but is not limited to,

concrete, reinforcing steel, formwork, surface finishing, subgrade preparation, aggregate base, stone veneer and mortar, drain pipe, pipe railing and connection details to and against adjacent structures.

Payment will be made on a Lump Sum basis.

Bid Item 25 30 – Decorative Pedestrian Railing (Lump Sum): Bid Item covers all work associated with custom guard rail and handrail as shown on the L-Series Contract Drawings and specified in the Contract Specifications.

Payment will be made on a Lump Sum basis.

Bid Item 26 31 – Decorative Paving (Lump Sum): Bid Item covers all work associated with decorative paving. Includes, but is not limited to, stone paving, decorative paving, turf block, decomposed granite, granite, colored and custom design concrete paving and plaza top of stair finish.

Payment will be made on a Lump Sum basis.

Bid Item 27 32 – Landscaping (Lump Sum): Bid Item covers all work associated with construction of the Landscaping except landscaping for Sobrato Restoration. Item includes, but is not limited to, soil preparation, trees, tree rootball drain system, shrubs, accent plant, and groundcover landscaping, including supplying plants, preparation of planting pits, backfill mix, staking, mulch, fertilizing, engineered soil mix, maintenance including associated meter rates and water usage *prior to final acceptance of the overall project (exclusive of the 12-month maintenance period)*, Earth and CCM Seeding Operations and Sod placement including hydroseeding, straw mulch, protection and Seeding Maintenance, all as required by the Contract Documents. *Maintenance during the 12-month maintenance period is covered in Bid Item 31.*

Payment will be made on a Lump Sum basis.

Bid Item 28 33 – Irrigation System (Lump Sum): Bid Item covers all work associated with installation; *and testing and maintenance* of the irrigation system as required by the I-Series Contract Drawings and specified in the Contract Specifications. *The bid item also covers maintenance performed prior to final acceptance of the overall project (exclusive of the 12-month maintenance period). Maintenance during the 12-month maintenance period is covered in Bid Item 31.* Item includes, but not limited to, fees and permits, water meters, pressure backflow assemblies, electric control hydrometers control valves, station controllers, main and lateral lines, coupling valves, rotary and spray sprinklers, bubblers, all with associated enclosures, risers and covers.

Payment will be made on a Lump Sum basis.

Bid Item 29 34 – Electrical Work (Lump Sum): Bid Item covers all work associated with permitting, service connections, installation, testing and maintenance of the electrical system as required by the E-Series Contract Drawings and specified in the Contract Specifications, except permanent traffic control systems at New Julian, which are covered in Bid Item ~~11~~ ~~14~~.

Payment will be made on a Lump Sum basis.

Bid Item 30 35 – Site Amenities (Lump Sum): Bid Item covers all work associated with site amenities as required by the Contract Documents. Item includes, but is not limited to, bollards and granite bollards, benches, swing gates, picnic tables, trash receptacles, stone seat walls, anti-skateboard devices, drinking fountains and associated water and sewer lines, Confluence Plaza monument, Pool of Genes monument, street and riverwalk barricades. *Maintenance during the 12-month maintenance period after final acceptance of the overall project contract is covered in Bid Item 32.*

Payment will be made on a Lump Sum basis.

~~**Bid Item 36 – Other Work (Lump Sum):**~~ Bid Item covers all required work not included in one of the preceding bid items.

~~Payment will be made on a Lump Sum basis.~~

Bid Item 31AA – Landscaping Maintenance During Maintenance Period (Lump Sum): Bid Item covers all work associated with the 12-month maintenance period after final acceptance of the overall project as required by the Contract Documents for seeding, planting, and irrigation systems. Item includes, but is not limited to, monthly monitoring of irrigation system, adjustment of automatic controllers for seasonal water requirements, monthly checking of moisture of representative plants and adjustments to irrigation system, replacement of dead or unhealthy plants, weed control, reseeding, turf replacement, pest control, mowing, fertilization, resetting trees, tree replacement due to vandalism, security measures to prevent vandalism, watering including associated meter rates and water usage, inspection, and maintenance reporting. *This Bid Item does not include maintenance of irrigation systems and landscaping on Sobrato property, which are covered by Bid Item 13.*

Payment will be made on a Lump Sum basis.

Bid Item 31AB – Pool Maintenance During Maintenance Period (Lump Sum): Bid Item covers all work associated with the 12-month maintenance period after final acceptance of the overall project as required by the Contract Documents. Item includes, but is not limited to, maintaining mechanical, filtration, and water treatment systems, chemically testing water, cleaning and chemically balancing water, and flushing water systems.

Payment will be made on a Lump Sum basis.

OPTIONAL ITEMS

~~**Bid Item 37 – NOT USED**~~

Bid Item 32 37 38 – Temporary Inlet Bulkheads (Lump Sum): This Bid Item covers all work associated with the construction of the temporary box culvert bulkheads and associated storm drain system at the East and West Inlets as required by the Contract Documents. Item includes, but is not limited to, steel support, stoplogs, blocking, pipe,

backfill, and crushed rock.

Payment will be made on a Lump Sum basis.

1.10 PAYMENT

1.10.1 General

A. Payment shall be in accordance with the provisions of Section 00700; CONTRACT CLAUSES.

- ~~A. Payment for the Work performed on this Contract shall be based on monthly updates of the Contractor's cost loaded CPM progress schedule.~~
- ~~— B. The dollar value of each activity on the cost loaded CPM schedule must be a true and accurate representation of the actual cost of the Work within that activity. The dollar value shall be the sum of equipment, material, labor, overheads and profit charges required to complete all work included in the activity.~~
- ~~— C. The total of all costs shall equal the total Contract price and shall be in conformance with the bid proposal.~~
- ~~— D. Separate cost-loaded activities shall be provided for the procurement and delivery, installation and testing, and start up of all major equipment.~~
- ~~— E. If applicable, the Contractor shall break out itemized payments for any stored equipment and materials on the Project Site as individual activities on the cost loaded CPM.~~
- ~~— F. The Government reserves the right to withhold amounts when Contractor falls behind schedule on activities critical to achieving specified milestone dates or completing the Work on schedule in accordance FAR 52.232-5 "Payments under Fixed-Price Construction Contracts", Subparagraph (e) Retainage.~~

1.10.2 Submittal Procedure

- ~~— A. Requests for payment will include the following steps:~~
 - ~~—— 1. The Contractor submits a marked-up copy of the previous month's schedule including its evaluation of the Work that has been completed in that period by percentage of activity complete.~~
 - ~~—— 2. The Contracting Officer reviews submission within 5 days.~~
 - ~~—— 3. The Contractor meets with the Contracting Officer to review and reach an agreement upon percentages. When an agreement cannot be reached, the Contracting Officer's value will be used.~~
 - ~~—— 4. The Contractor submits an Application for Payment and an updated schedule that reflects the changes agreed upon in the above-mentioned meeting.~~
- ~~— B. The Contractor shall execute certification with a signature of a responsible officer of the Contractor's firm, as the first signature on the Application of Payment.~~

~~—C. Progress payments shall not be construed as acceptance of any part of the Work.~~

1.10.3 Timing and Turnaround of Progress Payments

- ~~—A. Prior to submitting the first payment request, the Contractor shall have developed a cost loaded schedule acceptable to the Contracting Officer outlining the values of each element of the Work. Once the schedule has been accepted, it will be the basis of payment.~~
- ~~—B. Each Progress Payment Estimate prepared by the Contractor shall indicate the percentages of completion and the materials for which payments are to be requested. A review will be performed by the Contracting Officer to confirm that the general accounts are acceptable.~~
- ~~—C. After agreement on final determination of quantities and their associated value, based on percent complete of Contract schedule activities, the Contractor shall submit a completed Request for Payment for the pay period, and shall perform all extensions and arithmetic, and provide backup documentation, etc., on the prescribed forms.~~
- ~~—D. The end date for each monthly pay period shall be established as the last day of each month. Certified payrolls shall accompany each payment request.~~
- ~~—E. Where progress payments are approved prior to the 15th of the month, it is the intention of the Contracting Officer to make payments to the Contractor by the 20th of the following month. Failure on the part of the Contracting Officer to make said payment shall not be cause for an increase to cost unless such delay to payment exceeds 90 days from the date of approval.~~
- ~~F. Final payment shall be in accordance with the Contract Documents.~~

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

- END OF SECTION -

1.3.4 Construction

1.3.4.1 Details

Signs shall be constructed as detailed on the drawings attached to this specification section.

1.3.4.2 Painting

All exposed surfaces and edges of plywood shall be given one coat of linseed oil and be wiped prior to applying primer. All exposed surfaces of signs and supports shall be given one coat of primer and one finish coat of paint colors as indicated. All lettering shall be sized as indicated. Width of letter stroke shall be 1/6 of the letter height, except as noted.

1.3.5 Maintenance and Disposal

The Contractor shall maintain the signs in good condition throughout the life of the project. Signs shall remain the property of the Contractor and upon completion of the project they shall be removed from the site.

1.4 BULLETIN BOARD

1.4.1 General

A weatherproof bulletin board, not less than 48 inches wide and 36 inches high, with hinged glass door shall be provided adjacent to or mounted on the Contractor's project office. If adjacent to the office, the bulletin board shall be securely mounted on not less than 2 posts. Bulletin board and posts shall be painted or have approved factory finish. The bulletin board shall be easily accessible at all times and shall contain wage rates, equal opportunity notice, and other items required to be posted.

1.4.2 Maintenance and Disposal

The Contractor shall maintain the bulletin board in good condition throughout the life of the project. The bulletin board shall remain the property of the Contractor and upon completion of the project shall be removed from the site.

1.5 BEGINNING, INTERIM MILESTONES, AND COMPLETION OF WORK

Contractor shall begin work within one day of receipt of the notice to proceed and must complete the work *including maintenance period* within ~~1,277~~ 912 calendar days .

The Contractor shall complete all work necessary to reach substantial completion within 730 calendar days of the receipt of the notice to proceed. Substantial completion shall include completion of the culvert, inlet structures, and all work within the river channel (as defined in Paragraph 1.31.2), except planting, seeding, landscaping.

The Contractor shall complete all work necessary to reach final completion of the overall project within 912 calendar days of the receipt of the notice to proceed. Final completion includes all remaining work except the 12-month maintenance period for seeding, landscaping, irrigation systems, and the pool and associated equipment.

Additional schedule requirements are specified below and in Section 00700; CONTRACT CLAUSES.

1.5.1 CE Station 20+00 to CE Station 20+40

The Contractor shall complete all work between CE Station 20+00 and 20+40 including the box

items to be added or deleted from the agenda. The weekly meetings shall enable orderly review of progress during construction. The purpose of the meetings will be to analyze progress and review items relative to execution of the work. Agency representatives will be invited to attend weekly meetings. Subcontractor's, suppliers, and others shall be invited to attend weekly meetings in which their aspects of the work are involved. Relationships between Contractor and its subcontractors and suppliers, are Contractor's responsibility. Contractor's representatives attending and participating in weekly meetings shall have all required authority to commit Contractor to the resolution of problems as agreed on in weekly meetings. To the maximum extent practicable, Contractor shall appear in person or assign the same person or persons as representatives at weekly meetings throughout the construction period. Contractor's superintendents shall attend each meeting. The agenda shall include safety, review of minutes of previous meetings, review of work progress, identification of problems which impede the schedule and proposed corrective actions, review of submittals schedule and status of submittals, review of off-site fabrication and delivery schedules, revisions to project schedule, planned progress and work activities during succeeding work period, coordination of construction schedules, pending changes and substitutions, and any other business relating to the work.

The Contracting Officer will take minutes of each weekly meeting and these minutes will be jointly issued by signature of Contracting Officer and Contractor's representatives. One approved copy will be distributed to each organization that might be concerned with the proceedings. Minutes, when issued, shall be considered to be an accurate representation of the proceedings and decisions of the meeting. Corrections to minutes shall be settled as a priority under old business at the next regularly scheduled meeting.

1.21.3 General Construction Coordination Meeting

The Contracting Officer's Representative and the Contractors superintendent or another designated representative approved by the Contracting Officer shall attend the weekly construction coordination meeting for downtown City of San Jose.

1.21.4 Compaq Center at San Jose

The Contracting Officer's Representative and the Contractors superintendent or another designated representative approved by the Contracting Officer shall attend a monthly meeting with the Compac Center at San Jose operations committee. The primary purpose of the meeting will be for the Committee to keep the Contractor apprised of arena event schedules and therefore periods of time in which the Contractor will not be able to cross St. John Street, *events at Compaq Center requiring implementation of the post-event detour plan during culvert construction across New Julian Street*, and how traffic flow patterns will change. The Contractor in turn will keep the Committee apprised on the scheduled street closures.

1.21.5 Contractor Quality Control Coordination Meeting

As specified in Section 01451; CONTRACTOR QUALITY CONTROL.

1.21.6 Preconstruction Safety Conference

As specified in Section 01351; SAFETY, HEALTH, AND EMERGENCY RESPONSE.

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SECTION 02541

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SECTION 02541

WIRE MESH GABIONS

PART 1 GENERAL

1.1 SUMMARY

The work specified in this section includes, but is not limited to, the furnishing all plant, labor, material, and equipment necessary for assembling, filling, and tying open wire mesh rectangular compartmented gabions placed on a prepared foundation as specified herein, and in accordance with the lines, grades, and dimensions shown on the Drawings or otherwise established in the field by the Contracting Officer

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. The latest edition available on the date of the Notice of Inviting Bids shall be used.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM):

ASTM A 90	Standard Test Method for Weight of Coating on Zinc-Coated (Galvanized) Iron or Steel Articles.
ASTM A 239	(1995) Test Method for Locating the Thinnest Spot in a Zinc (Galvanized) Coating on Iron or Steel Articles by the Preece Test (Copper Sulfate Dip)
ASTM A 641	(1998) Specification for Zinc Coated (Galvanized) Carbon Steel Wire
ASTM A 853	Specification for Steel Wire, Carbon, for General Use
<i>ASTM A 974</i>	<i>Welded Wire Fabric Gabions and Gabion Mattresses</i>
<i>ASTM A 975</i>	<i>Double-Twisted Hexagonal Mesh Gabions and Revet Mattresses.</i>
ASTM C 88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C 127	Specific Gravity and Absorption of Coarse Aggregate
ASTM C 535	Resistance to Degradation of Large Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

ASTM D 1141	Substitute Ocean Water
ASTM D 2488	Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)
ASTM G 23	Operating Light and Water Exposure Apparatus (Carbon Arc Type) for Exposure of Nonmetallic Materials

FEDERAL SPECIFICATIONS (Fed. Spec.):

QQ-W-461	(Rev. H) Wire, Steel, Carbon (Round, Bare, and Coated)
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1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330; SUBMITTAL PROCEDURES:

SD-04, Drawings

Gabion Layout; GA

Gabion layout drawings shall be submitted to the Contracting Officer for approval not less than 30 days prior to the start of gabion construction. Gabion layout drawings shall include locations of tree pits.

SD-09, Reports

Stone Filling; GA

Test results 30 days prior to delivery of stone to site.

SD-13, Certificates

Gabion Materials; FIO

For each shipment of materials to the site, the Contractor shall furnish the Contracting Officer, in duplicate, a manufacturer's certificate or affidavit signed by a legally authorized official from the company manufacturing the gabion units, that all material contained within that shipment meets the composition, physical, and manufacturing requirements stated in this specification.

SD-14, Samples

Stone Filling; GA

Samples of stone fill material submitted for approval prior to delivery.

1.4 — DEFINITIONS

~~Gabion: Compartmented rectangular basket containers with a minimum dimension greater than 12 inches, fabricated from galvanized steel triple twisted wire mesh with hexagonal openings, and filled with clean, durable stone.~~

PART 2 PRODUCTS

2.1 WIRE MESH GABIONS

2.1.1 Twisted Wire Mesh Gabions and Revet Mattresses

~~Gabion basket units shall be of nonraveling construction and fabricated from a triple twisted hexagonal wire mesh of hot dipped galvanized steel wire having a minimum diameter of 0.118 inch after galvanization. The steel wire shall be galvanized prior to fabrication into mesh. All gabion diaphragm and frame wire shall equal or exceed Fed. Spec. QQ-W 461 (ASTM A 853, ASTM A 641), possess medium tensile strength, and a Finish 5, Class 3 coating of not less than 0.80 oz./sq.ft. of uncoated wire surface. The weight of zinc coating shall be as determined by ASTM test designation A 90. The grade of zinc used for coating shall be High Grade or Special High Grade as prescribed in ASTM B 6, Table 1. The uniformity of coating shall equal or exceed four 1-minute dips by the Preece Test, as determined by ASTM A 239. Mesh openings shall be hexagonal in shape, and uniform in size measuring no more than approximately 3 1/4 inches by 4 1/2 inches. Selvedge or perimeter basket frame wire shall be of heavier gauge than the wire mesh with a minimum diameter after galvanization of 0.15 inch. Wire used for lacing or as internal connecting wire within basket cells may be of soft tensile strength and of lighter gauge with a minimum diameter of 0.0866 inch after galvanization.~~

Twisted wire gabions and revet mattresses shall comply with the requirements of ASTM A 975, except as modified herein, and shall consist of a nonravelling mesh made by twisting continuous pairs of wires through three one-half turns to form a hexagonal-shaped openings, which are then interconnected to adjacent wires to form hexagonal openings. The wire mesh shall be manufactured using steel wire, which is zinc coated before being twisted into the mesh (Style 1 in conformance with ASTM A 975). The zinc-coated steel wire shall be 0.120-inch diameter soft temper with a Class 3 coating in conformance with the requirements of ASTM A 641. The weight of zinc coating shall be as determined by ASTM test designation ASTM A 90 and ASTM A 974. The grade of zinc used for coating shall be High Grade or Special High Grade as prescribed in ASTM B 6, Table 1. The uniformity of coating shall equal or exceed four 1-minute dips by the Preece Test, as determined by ASTM A 239.

*Gabion and revet mattress mesh opening sizes, and tolerances shall comply with the requirements of **ASTM A 975** (Table 1). Gabion and revet mattress sizes shall be as shown on the Drawings. Spiral binders, lacing wire, and stiffeners shall be made of soft temper wire conforming to ASTM A 641, and shall have the same coating as the mesh and shall have diameter conforming to the requirements of ASTM A 975, Table 1.*

Gabions shall be fabricated in such a manner that the sides, ends, lid, and diaphragms can be assembled at the construction site into rectangular baskets of the sizes specified and shown on the drawings. Gabions shall be of single unit construction, i.e., the base, lid, ends and sides shall be either woven into a single unit or one edge of these members connected to the base section of the gabion in such a manner that strength and flexibility at the point of connection is at least equal to that of the mesh. Where the length of the gabion exceeds one and one-half its horizontal width, the gabion shall be equally divided by diaphragms into cells whose length does not exceed the horizontal width. Diaphragms shall be of the same mesh and gauge as the body of the gabions. The gabion shall be furnished with the necessary diaphragms secured in proper position on the base in such a manner that no additional tying at this juncture will be necessary. All perimeter edges of the mesh forming the gabion shall be securely selvaged so that the joints formed by tying the selvages have at least the same strength as the body of the mesh. Lacing wire or connecting wire shall be used in sufficient quantity for securely fastening all diaphragms and edges of the gabion.

2.1.2 Welded Wire Mesh Gabions and Gabion Mattresses

*Welded wire mesh gabions and gabion mattresses shall comply with the requirements of ASTM A 974, except as modified herein, and shall consist of welded wire fabric made from 0.120 inch diameter wire which is either zinc-coated before being welded into the fabric fabrication (Style 1 in conformance with ASTM A 974), or from uncoated wire, and the fabric is subsequently zinc-coated after fabrication (Style 2 in conformance with ASTM A 974). Gabions and revet mattresses shall be manufactured with a welded wire mesh composed of a series of longitudinal and transverse steel wires arranged substantially at right angles to each other, and welded together at the points of intersection by electrical resistance welding to form fabricated sheets. Gabion [and mattress] sizes, wire diameters, mesh opening sizes, and tolerances shall comply with the requirements of **ASTM A 974** (Tables 1, 2, 3, and Sections 9). The metallic coating shall conform to ASTM D 641 and be a Class 3 coating of not less than 0.85 oz./sq.ft. of uncoated wire surface. The weight of zinc coating shall be as determined by ASTM test designation ASTM A 90 and ASTM A 974. The grade of zinc used for coating shall be High Grade or Special High Grade as prescribed in ASTM B 6, Table 1. The uniformity of coating shall equal or exceed four 1-minute dips by the Preece Test, as determined by ASTM A 239.*

Spiral binders, lacing wire, and stiffeners shall be made of soft temper wire with a Class 3 coating conforming to ASTM A 641, and shall have diameter conforming to the requirements of ASTM A 974, Table 3.

2.2 ALTERNATIVE WIRE FASTENERS FOR GABIONS

2.2.1 General

Subject to approval of the Contracting Office, wire fasteners including interlocking fasteners, ring fasteners, twist ties, and spiral binders may be used in lieu of lacing wire. When seeking such approval, the Contractor shall demonstrate to the satisfaction of the Contracting Officer:

- a. That the proposed fastener system can consistently produce a joint with a strength of 1,400 pounds per lineal foot when tested in accordance with paragraph 2.2.3
- b. That the proposed fastener system does not cause damage to the protective coating on the wire;
- c. That the Contractor has the proper equipment and trained employees to correctly install the fasteners; and
- d. That proper installation can be readily verified by visual inspection.

The Contractor shall provide a complete description of the fastener system, including the number of fasteners required, the number and size of wires that fastener is capable of properly joining, and a description of a properly installed fastener, including drawings or photographs if necessary. A properly installed fastener shall meet the same requirements as that specified for the fasteners in the paragraph 2.2.3. If gages or other aids are needed to verify the proper installation of the fasteners, the Contractor shall furnish the Government such gages or aids, in such number as may reasonably be required, for the use of Government inspectors. If more than one wire fastener is proposed (e.g. different gage or length of wire) for different joints, the fasteners shall be readily distinguishable. Alternate wire fasteners shall not be used to join more wires, or larger wires, than for which they were tested and approved. As a minimum, a fastener shall be installed at each mesh opening at the location where mesh wire meets selvage or edge wire. Alternate wire fasteners shall not be used to close basket lids unless specifically approved for that purpose. When seeking approval to use alternate wire fasteners to close basket lids, the Contractor shall demonstrate to the satisfaction of the Contracting Officer that the fasteners can be properly installed on a properly filled gabion without stretching the gabion to the point that the gabion, or the protective wire coating, is damaged.

2.2.2 Wire Fasteners Materials

Galvanized wire fasteners shall be used with galvanized gabions. Galvanized wire fasteners, except twist tie and spiral binder fasteners shall conform to ASTM A 764, Finish 1 with Type III coating. Twist tie or spiral binder fasteners shall meet the requirements of lacing wires as specified in Paragraph 2.1.

2.2.3 Testing

Test records made within 5 years by certified laboratories and Government agencies will be used to determine the acceptability of wire fasteners. Samples of wire fasteners with their certified test records shall be submitted at least 60 days in advance to the Contracting Officer for approval. The Government reserves the right to test additional samples to verify the submitted test records at the Government's expense. When the first test results indicate that the fasteners do not meet the specified requirements, the additional test will be at the Contractor's expense. The fasteners will be rejected after two tests failing to meet the requirements. All types of fasteners including fasteners made of stainless steel shall be subject to the salt spray test and pull-apart resistance test.

- a) Salt Spray Test – A set of two identical rectangular gabion panels, each with a width about 10-1/2 mesh openings along a selva wire, shall be jointed by properly installed wire fasteners along the two selva wires so that each fastener confines two selva and two mesh wires. If the fasteners are also to be used to joint two individual empty gabion baskets, two additional selva wires which are each mechanically wrapped with mesh wires shall be included so that each fastener confines four selva and four mesh wires. The set of the jointed panels shall be subject to salt spray test, ASTM B 117, for a period of not less than 48 hours. At the end of the test, the fasteners, the selva, or mesh wires confined by the fasteners shall show no rusty spots on any part of the surface excluding the cut ends. A properly installed fastener shall meet the following requirements:
 - (1) Each interlocking fastener shall be in a locked and closed position.
 - (2) Each ring fastener shall be closed, and the free ends of the fastener shall overlap a minimum of 1 inch.
 - (3) Each twist tie shall be closed and maintain a minimum of two full turns.
 - (4) The spiral binder shall be tied at both ends.
- b. Pull-Apart Resistance Test- A new set of the jointed panels, which are prepared by the same method as specified in the salt spray test but without being subject to the 48-hour salt spray test, shall be mounted on a loading machine with grips or clamps such that the panels are uniformly secured along the full width. The grips or clamps shall be designed to transmit only tension forces. The load will then be applied at a uniform rate of 50 per second until failure occurs. The failure is defined as when the maximum load is reached and a drop of strength is observed with subsequent loading or the opening between any two closest selva wires, applicable to a fastener confining either two or four selva wires, becomes greater than 2 inches at any place along the panel width. The strength of the jointed panels at failure shall have a minimum of 1,400 pounds per linear foot.

2.3 STONE FILL

2.3.1 Quality

Stone shall be durable and of suitable quality to ensure permanence in the structure and climate in which it is to be used in addition to meeting the requirements shown in Table 02541-1. Stone shall be free of cracks, seams, and other defects that would tend to increase unduly its deterioration from natural causes or reduce its size to that which could not be retained in the gabion baskets. The inclusion of objectionable quantities of dirt, sand, clay, and rock fines will not be permitted. The sources from which the contractor proposes to obtain the material shall be selected well in advance of the time when the material will be required in the work. Representative samples of stone fill material shall be tested in accordance with Table 02541-1 and the results delivered to the Contracting Officer for approval 30 days prior to delivery of the stone.

Table 02541-1
Stone Requirements

<u>Test</u>	<u>Test Method</u>	<u>Requirement</u>
Specific Gravity	ASTM C 127	2.60 minimum
Absorption	ASTM C 127	2.0% maximum
Wetting & Drying	SPD Test Procedure(1)	No fracturing (3)
Magnesium Sulfate	ASTM C 88(2)	15% max. loss (4)
Abrasion Loss	ASTM C 535	50% maximum loss

In addition to the above tests, the stone shall be subjected to a petrographic and X-ray diffraction analysis. The stone must not contain any swelling type clay (illite or montmorillonite).

NOTE: (1): Test procedure wetting-and-drying tests: The initial step of the test is the careful examination of the entire sample and the selection of representative test specimens. The piece should be large enough to produce two cut slabs, 1 inch thick (+ 1/4 inch) with a minimum surface area of 30 square inches on one side. Two chunks approximately three by four inches are also chosen. The slabs and chunks are carefully examined under a low-power microscope and all visible surface features are noted and recorded. The specimens are then oven dried at 140 degrees F. for eight hours, cooled and weighed to the nearest tenth of a gram. The test specimens are photographed to show all surface features before the test. The chunks and slabs are then subjected to fifteen cycles of wetting and drying. One slab and one chunk are soaked in fresh tap water, and the other slab and chunk are soaked in salt water prepared in accordance with ASTM D 1141. Each cycle consists of soaking for sixteen hours at room temperature and then drying in an oven for eight hours at 140 degrees F. After each cycle the specimens are examined with the low-power microscope to check for opening or movement of fractures, flaking along edges, swelling of clays, softening of rock surface, heaving of micaceous minerals, breakdown of matrix material and any other evidence of weakness developing in the rock. The cycle in which any of these actions occurs is recorded. After fifteen cycles, the slabs and chunks are again carefully examined and all changes in the rocks are noted and recorded. The test

specimens together with all flakes or particles which come off during the test are oven dried, weighed and photographed.

NOTE: (2): The test shall be made of 50 particles each weighing 100 grams, (± 20 grams), in lieu of the gradation given in ASTM C 88.

NOTE: (3): Weakening and loss of individual surface particles is permissible unless bond of the surface grains softens and causes general disintegration of the surface material.

2.3.2 Gradation

Stone fill used in the gabions shall be a well-graded mixture with sizes ranging between 4 inches and 8 inches with a D50 between 6 and 7 inches, based on U.S. Standard square mesh sieves. No stone with a dimension less than 3.5 inches shall be used. *Stone fill used in the revet mattresses shall be a well-graded mixture with sizes ranging between 3 inches and 3 inches with a D50 of 4.5 inches, based on U.S. Standard square mesh sieves. No stone with a dimension less than 3.5 inches shall be used.* The shape of the stones shall not be flat and/or elongated as defined in ASTM D 2488. Rounded cobbles are unacceptable as stone fill for the gabions *or revet mattresses*. Subrounded, subangular, and angular stone as defined in ASTM D 2488 is acceptable.

2.3.3 Gradation Sampling and Testing for Stone

Tests shall be performed by an independent commercial testing laboratory that is approved by the Contracting Officer in accordance with Section 01451; CONTRACTOR QUALITY CONTROL on samples selected by the Contracting Officer. The Government reserves the right to perform check tests and to use the Contractor's sampling and testing facilities to make the tests. Each sample, unless reduced in quantity by the Contracting Officer, shall consist of not less than 1/2 ton of materials and shall be selected at random from the production run. One gradation test is required at the beginning of production prior to delivery of stone to the project with a minimum of one additional test halfway through placement. Test results shall be submitted to the Contracting Officer within 24 hours of the test completion.

2.4 GEOTEXTILE

Geotextile shall be Filter Fabric 1 as specified in Section 02215; GEOTEXTILE FILTER FABRIC.

PART 3 EXECUTION

3.1 FOUNDATION PREPARATION

Subgrade and crushed rock under gabions shall be in accordance with Section 02200; EXCAVATION AND BACKFILL. The crushed rock surface shall be maintained in a compacted condition free of voids, pits, or depressions. The crushed rock surface shall be

inspected by the Contracting Officer, and no material shall be placed thereon until that area has been approved.

3.2 PLACEMENT OF SEPARATION/ FILTRATION GEOTEXTILE

The geotextile shall be placed as shown on the Drawings and as specified in Section 02215; GEOTEXTILE FILTER FABRIC.

3.3 GABION ASSEMBLY AND INSTALLATION

Empty gabion units shall be assembled individually and placed on the approved surface to the lines and grades as shown on the approved layout drawings and as shown on the Drawings or as directed by the Contracting Officer, with the sides, ends, and diaphragms erected in such a manner to insure the correct position of all edges and to ensure that the tops of all sides are level. All adjoining empty gabion units must be connected by tie wire lacing along the perimeter of their contact surfaces in order to obtain a monolithic structure. Lacing of adjoining basket units shall be accomplished by continuous stitching with alternating single and double loops at intervals of not more than 5 inches. All lacing wire terminals shall be securely fastened. Wire fasteners may be used in lieu of lacing wire for forming individual baskets and joining empty baskets together prior to stone filling. Approved fastener clips shall be spaced at 4 inches, unless otherwise approved by the Contracting Officer, and provide a tight connection. All joining shall be made through selvage-to-selvage or selvage-to-edge wire connection; mesh-to-mesh or selvage-to-mesh wire connection is prohibited except in the case where baskets are offset or stacked and selvage-to-mesh or mesh-to-mesh wire connection would be necessary. Wire fasteners shall not be used to tie or join stone-filled baskets, unless approved by the Contracting Officer. Each wire fastener shall be properly installed and closed as specified in Paragraph 2.2.3.a. As a minimum, a fastener shall be installed at each mesh opening at the location where mesh wire meets selvage or edge wire. The initial line of basket units shall be placed on the prepared geotextile surface in a direction parallel to stream flow, and partially filled to provide anchorage against deformation and displacement during filling operations. After adjoining empty units are thoroughly laced, they shall be placed in tension and stretched to remove any kinks from the mesh and to a uniform alignment. The gabion unit shall be placed with its diaphragms lying perpendicular to the direction in which the stone fill will tend to move. The stretching of empty basket units shall be accomplished in such a manner as to prevent possible unraveling.

3.4 STONE FILLING

Stone filling operations shall carefully proceed with placement by hand or machine so as not to damage galvanized wire coating, to assure a minimum of voids between the stones, and the maintenance of alignment throughout the filling process. Undue bulging of the mesh shall be avoided. To avoid localized deformation, the basket units in any row are to be filled in stages consisting of maximum 12 inch courses, and at no time shall any cell be filled to a depth exceeding one foot more than the adjoining cell. The maximum height from which the stone may be dropped into the basket units shall be 36 inches. Along all exposed faces, the outer layer of stone shall be carefully placed and arranged by hand to ensure a neat and compact appearance.

The last layer of stone shall be leveled with the top of the gabion to allow for the proper closing of the lid and to provide an even surface that is uniform in appearance. Lids shall be stretched tight over the stone fill using crowbars or lid closing tools, until the lid meets the perimeter edges of the front and end panels. The lid shall then be tightly laced with tie wire along all edges, ends, and internal cell diaphragms by continuous stitching with alternating single and double loops at intervals of not more than 5 inches. Special attention shall be given to see that all projections or wire ends are turned into the baskets. Where shown on the Drawings or as directed by the Contracting Officer, or where a complete gabion unit cannot be installed because of space limitations, the basket unit shall be cut, folded, and wired together to suit existing site conditions. The mesh must be cleanly cut and the surplus mesh cut out completely, or folded back and neatly wired to an adjacent gabion face. The assembling, installation, filling, lid closing, and lacing of the reshaped gabion units shall be carried out as specified above.

3.5 BACKFILL

Locations shown on the Drawings requiring backfill with crushed rock shall be in accordance with Section 02200; EXCAVATION AND BACKFILL.

3.6 DIMENSIONAL TOLERANCES

Locate vertical faces of baskets within 3 inches of required lines and grades. Locate horizontal faces of baskets within 2 inches of required lines and grades. Variations from true plane for both horizontal and vertical surfaces shall not exceed 2 inches in 8 feet.

3.7 COORDINATION WITH LANDSCAPING

Construction of gabions shall be coordinated with the work described in Section 02811; IRRIGATION SYSTEMS, Section 02950; PLANTING, and any other landscaping work within the limits of the gabion structures as shown on the Drawings. Landscaping work within the limits of the gabions shall be performed concurrently with gabion assembly.

END OF SECTION

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SECTION 02560

STREET CLOSURE AND TRAFFIC CONTROL

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SECTION 02560

STREET CLOSURE AND TRAFFIC CONTROL

PART 1 GENERAL

1.1 SUMMARY

The work specified in this section consists of furnishing all plant, labor, materials and equipment and performing all operations required for temporary closure and reopening of North River Street and Saint John Street, partial closure of New Julian Street, and any other traffic control required to complete the work. This work includes removing existing pavement marking, installing temporary signal, signage and barriers, providing temporary pavement marking, maintaining pedestrian access, removing temporary facilities, providing permanent pavement marking, and controlling traffic during the project. Some of the temporary signs may be installed outside of the construction limit.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. The latest edition available on the date of the Notice of Inviting Bids shall be used.

CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS)

Caltrans Traffic Manual	Caltrans Traffic Manual (Chapter 5 – published separately as Manual of Traffic Controls for Construction and Maintenance Work Zones – 1996 Revision 1, which is available on the Internet at http://www.dot.ca.gov/hq/traffops/signtech/signdel/chp5/chap5.htm)
Caltrans Standard Plans	(July 1997) Caltrans Standard Plans – note 1995 and more recent editions are in metric units and July 1999 edition does not include Type 50 Barrier
City of San Jose	Street Construction During Peak Commute Hours Ordinance 26048 (http://www.ci.san-jose.ca.us/pub-wrks/laneclosure/ordinance.html)
City of San Jose	Standard Specifications Section 86 – Signals, Lighting, Electrical Systems

1.4 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330; SUBMITTAL DESCRIPTIONS:

SD-01 Data

Street Closure Plans; GA

The Contractor shall submit plans to the city in accordance with City of San Jose Construction Ordinance 26048 at least 30 days in advance of any street or lane closure except for New Julian Street. ***Detour plans for New Julian Street during construction including detour plans for traffic following events at Compaq Center with attendance in excess of 6,000 people*** shall be submitted to the City of San Jose no later than 30 days after Notice to Proceed. Plans shall include ***details of types of traffic control devices***, locations of traffic control devices, temporary markings, signs, ~~and details and~~ sign locations for both traffic and pedestrian detours around street or lane closures, ***and implementation plans for detours following large events at Compaq Center including changes to signal timing for the signalized intersections at Julian and Sobrato driveway and Julian and Highway 87.***

Construction Traffic Crossing Plan; GA

The Contractor shall submit plans to the city for construction traffic crossing St. John Street at least 30 days in advance of any such traffic crossings. Plans shall include details of locations of flag personnel, traffic control devices, temporary markings, and signs.

SD-04 Drawings

Detailed Electrical Plans for Temporary Signals and Lighting; GA

Detailed electrical plans for temporary signals and lighting shall be prepared by the Contractor and submitted no later than 30 days after Notice to Proceed. These plans shall show the details and locations of the poles, pole foundations, signal heads, span wiring, routing and sizes/types of electrical conductors and cables. If necessary, the Contractor shall furnish and install guy wires and anchors. The plan format shall be similar in detail to that shown for permanent signals in the Drawings.

1.5 MAINTENANCE OF TRAFFIC

When traffic must be rerouted or controlled to accomplish the work, the necessary warning signs, flagging, and related equipment for the safe passage of vehicles shall be provided. Traffic control systems including street lights and traffic signal systems must remain operational during the construction. The Contractor shall provide temporary street lighting and traffic signal

systems complying with the City of San Jose standards and requirements. Flagging within the City of San Jose right of way within or near a signalized intersection shall be done by reserve police officers in accordance with City ordinance.

PART 2 PRODUCTS

2.1 BARRIERS AND BARRICADES

Temporary barriers and barricades shall be of the type and at the locations shown on the Drawings and shall conform to Caltrans Standard Plans (July 1997 Edition) or as approved by the Contracting Officer. Temporary barriers and barricades shall remain the property of the Contractor and upon completion of the project they shall be removed from the site.

2.2 PAVEMENT MARKINGS

2.2.1 Temporary Pavement Markings

Temporary pavement markings shall conform to Section 5-05.7, "Markings," of the Caltrans Manual of Traffic Controls for Construction and Maintenance Work Zones (Caltrans Traffic Manual, Chapter 5).

2.2.2 Permanent Pavement Markings

Permanent pavement markings shall conform to Section 02577; PAVEMENT MARKING.

2.3 SIGNS

2.3.1 Temporary Signs

Signs that are only for use during construction shall conform to Caltrans Manual of Traffic Controls for Construction and Maintenance Work Zones (Caltrans Traffic Manual, Chapter 5) and shall have the proper reflective color coding. Temporary signs shall remain the property of the Contractor and upon completion of the project they shall be removed from the site.

2.3.2 Permanent Signs

All permanent signs shall conform to Section 10430; PERMANENT SIGNAGE.

2.3.3 Temporary Signals

Temporary signals and temporary traffic detection loops shall be of the *Type C-6'X 30' and Type Q-6' X6'* at the locations shown on the Drawings C-44B, C-44C and C-44D. Temporary signals shall remain the property of the Contractor and upon completion of the project they shall be removed from the site. Existing controllers shall be used for the temporary configurations.

PART 3 EXECUTION

3.1 STREET CLOSURE

3.1.1 General

The Contractor shall comply fully with the terms of the City of San Jose encroachment permit. All street closure work shall conform to Caltrans Manual of Traffic Controls for Construction and Maintenance Work Zones (Caltrans Traffic Manual, Chapter 5) and requirements of the City of San Jose for street closure. Periods of closure of New Julian Street and Saint John Street shall be in accordance with the requirements of Section 01500; GENERAL REQUIREMENTS.

Contractor shall provide all necessary traffic control devices, including but not limited to electric arrow boards, construction warning and/or detour signs, barricades, portable changeable message signs as required by City for full or partial street closure, pursuant to State and city standard specifications.

The Contractor shall provide a minimum 48 hour notice to the City Emergency Communication System (SFPD, SJFD) prior to the closure of any City of San Jose street.

When working in the downtown area (bounded by Julian Street, 7th Street, Route I-280, Route 87), notify **Zahir Gulzadah** ~~Matt Cano~~, Downtown Traffic Operations Engineer for the Department of Street and Traffic at (408) 277-3675 (and zahir.gulzadah@ci.sj.ca.us ~~matt.cano@ci.sj.ca.us~~) at least 10 days prior to start of construction. Notification will be given to the Downtown Business Association, Office of Cultural Affairs, and the San Jose Redevelopment Agency.

The City of San Jose will review the geometric design and provide comments to the contractor for the New Julian Street Detour Plan. ~~The City of San Jose is available to provide geometric design assistance to the Contractor for the New Julian Plan.~~ The city will require information from the Contractor regarding work area, staging area, equipment operations, etc. to be included in the plan. Contact **Zahir Gulzadah** ~~Matt Cano~~, Associate Engineer, Department of Transportation, City of San Jose, (408) 277-3675 and ~~(matt.cano@ci.sj.ca.us)~~ (zahir.gulzadah@ci.sj.ca.us).

3.1.2 Informational Meeting

The Contractor shall hold an informational/coordination meeting with the City of San Jose and affected parties identified by the City at least 30 days prior to street closure and shall notify the Contracting Officer 14 days prior to the meeting for coordination with the City.

3.1.3 Safety

The Contractor shall follow all safety requirements of OSHA, Cal-OSHA, Caltrans, the Corps of Engineers, the City of San Jose, and all other governing agencies. At any and all points along the work where the nature of construction operations in progress and the equipment and machinery in use are of such character as to endanger passing traffic, the Contractor shall provide such lights and signs, erect such fences or barriers, and station such guards as may be necessary to give adequate warning and to avoid damage or injury to passing traffic. Signs, flags, lights, and other warning and safety devices shall conform to applicable city, county, and state requirements.

3.1.4 Pedestrian Access

Contractor shall maintain a continuous walkway along at least one side of New Julian Street at all times during the Work. All temporary walkways shall be ADA compliant. Contractor shall provide pedestrian detour signs as required by City.

3.1.5 Removal of Pavement Markings

Existing pavement markings shall be permanently removed or covered with permanent paint matching the color of the adjacent pavement. Temporary pavement markings shall be removed by a method approved by the City (e.g., sandblasting or grinding) and the replacement permanent pavement delineation (striping and marking) shall be installed, prior to reopening the street.

3.1.6 Signs

Contractor shall erect signs at both ends of affected portion of the closed street and at all side entrances warning of street closure at least 30 days prior to closure. Signs shall include the dates of closure and an alternate route. If the planned dates of closure change, signs shall be changed accordingly. Other signs shall be as shown on the street closure plans.

3.1.7 Removal of Julian Street Bridge Median

The median on the New Julian Street Bridge shall be removed at the locations shown on the Drawings. Concrete shall not be removed from below the plane of the existing roadway surface. Dowels shall be cut off smooth with the temporary roadway surface. All existing features to be removed shall be surveyed prior to removal.

3.1.8 Full Closure of Julian Street at Night

Full closure of New Julian Street for an extended period will be not be allowed and may occur only at “night.”

“Night” hours for full closure are specifically defined as 12:00am to 5:00am.

Contractor shall obtain approval from City, coordinated with the Compaq Center at San Jose, and provide written notification to affected businesses and residences at least 7 days prior to implementing full closure of Julian Street. Such notification shall include at minimum a brief description of the scope of work, days and hours of closure, recommended detour route, and point of contact for public concerns.

Contractor shall submit an acceptable detour plan that clearly identifies the detour route, signage plan and locations. Contractor shall submit such detour plan to the City for approval at least 30 days in advance before implementing full closure of Julian Street.

Temporary street closure permit shall be obtained from the San Jose Police Department.

Full closure of Julian Street shall not occur concurrently with full closure of St. John Street.

3.1.9 Full Closure of St. John

Contractor shall obtain approval from City, coordinate with the Compaq Center at San Jose, and provide written notification to all affected businesses and residences at least 14 days prior to implementing full closure of St. John Street. Such notification shall include at minimum a brief description of the scope of work, days and hours of closure, recommended detour route, and point of contact for public concerns. Full closure shall be for no more than one period of 6 consecutive months.

Full closure of St. John Street shall not occur concurrently with partial or full closure of Julian Street.

Pedestrian detour signs shall be provided to guide pedestrians around the project site.

Temporary street closure permit shall be obtained from the San Jose Police Department.

At the end of the six month full closure of St. John Street, Contractor shall open St. John up to both vehicular and pedestrian traffic. Where heavy construction equipment is required to cross St. John Street, Contractor shall use the approved Construction Traffic Crossing Plan.

3.1.10 Partial Closure of New Julian Street

Partial closure shall be for no more than one period of 5 consecutive months. The five month closure shall occur between the months of May and October. No more than one traffic lane may be closed at any time.

Contractor shall coordinate with the City at least 30 days in advance before implementation of any traffic lane closures that may require traffic signal shut downs.

Contractor shall coordinate with the City at least 30 days in advance before implementation of any traffic lane closure that may require signal modifications and/or signal re-timing.

Contractor shall provide a minimum of two uniformed reserve police officers for traffic control at all temporarily non-operational signalized intersections, or within 60m of an intersection.

When access to residences or businesses will be restricted, Contractor shall obtain approval from affected owners (i.e., Sobrato, St. John residents) and the City.

The Contractor shall coordinate the start date of partial closure with the Compaq Center at San Jose to minimize disruption to traffic flow and pedestrian movement during the Stanley Cup playoffs, which typically occur in May and June each year.

Partial closure of Julian Street shall not occur concurrently with full closure of St. John Street.

During events at Compaq Center in which attendance is anticipated to be in excess of 6,000 (estimated to be 24 events during the five month partial closure), the Contractor shall install the detour plan for egress from Compaq Center as shown in the Drawings and as submitted by the Contractor and approved by the Contracting Officer. The detour plan shall include uniformed police officers provided by the Contractor at the intersections of New Julian and Sobrato driveway and New Julian and Highway 87. Detour for egress for large events shall be coordinated with Compaq Center and the City of San Jose. Diversion of traffic shall be performed under the control of San Jose Police Department. One hour after completion of installation of the post-event detour plan, the Contractor shall remove the post-event detour and restore the construction detour signage and tubular markers.

3.2 STREET REOPENING

3.2.1 Pavement Markings

Permanent pavement marking shall be done prior to reopening the street and installation shall conform to Section 02577; PAVEMENT MARKING.

3.2.2 Permanent Signs

Permanent signs shall be installed prior to reopening the street and the installation shall conform to Section 10430; PERMANENT SIGNAGE.

3.2.3 Damage to Existing Facilities

Any damage to the pavement, curbs, existing signs, parking meters, or any other facilities along the street occurring as a result of the Contractor's operations shall be repaired at no additional cost to the Government prior to reopening the street. Such repairs shall include patching any holes in streets or sidewalks caused by installing temporary signs or by permanent removal or relocation of existing signs.

3.2.4 Traffic Signals

The Contractor shall remove all temporary equipment and restore the traffic control system back to the original state. The permanent traffic control system shall be in accordance with Section 16530; TRAFFIC CONTROL SYTEM.

3.2.5 Replacement of Existing Facilities Removed for Temporary Facilities

All curbs and medians removed for temporary traffic detours shall be replaced with details similar to the existing. Dowels to replace the median of New Julian Street on the bridge shall be at locations as directed by the Contracting Officer.

END OF SECTION

3.4 POSTING FRAMED INSTRUCTIONS

Framed instructions containing wiring and control diagrams under glass or in laminated plastic shall be posted where directed. Condensed operating instructions, prepared in typed form, shall be framed as specified above and posted beside the diagrams. The framed instructions shall be posted before acceptance testing of the system. After as-built Drawings are approved by Contracting Officer, controller charts and programming schedule shall be prepared. One chart for each controller shall be supplied. Chart shall be a reduced Drawing of actual as-built system that will fit the maximum dimensions inside controller housing. Black line print for chart and a different pastel or transparent color shall indicate each station area of coverage. After chart is completed and approved for final acceptance, chart shall be sealed between two 20-mil pieces of clear plastic.

3.5 FIELD TRAINING

A field-training course shall be provided for designated operating and maintenance staff members at end of maintenance period. Training shall be provided for a total period of 8 hours of normal working time and shall start after the system is functionally complete but prior to final acceptance tests. Field training shall cover all of the items contained in the operating and maintenance manuals.

3.6 CLEANUP

Upon completion of installation of system, all debris and surplus materials resulting from the work shall be removed off site in accordance with all applicable laws and regulations.

3.7 WARRANTY

The entire irrigation system and components shall be guaranteed by the Contractor for a period of ~~36~~ **12 months after acceptance of the work from the date of final acceptance of the overall project, except within the limits of Sobrato restoration work where the warranty shall be for 12 months after acceptance of the Sobrato restoration work by the Contracting Officer.** All required repairs during the warranty period shall be made at no additional cost to the Government.

3.8 MAINTENANCE PERIOD

The Contractor shall provide maintenance of the irrigation system ~~throughout the maintenance period from the completion of system installation to the date of final acceptance of the overall project (as determined by the Contracting Officer) and for a maintenance period of 12 months from the date of final acceptance of the overall project.~~ The maintenance period begins after final acceptance of the entire contract as determined by the Contracting Officer. ~~The maintenance period shall continue for a period of 36 months, or longer if an extension is directed by the Contracting Officer.~~ **The only exception shall be for the irrigation system installed during Sobrato restoration, which shall be maintained by the Contractor for 12-months after**

acceptance of Sobrato restoration work by the Contracting Officer. Maintenance includes monitoring, adjustments and repairs.

3.8.1 Monitor irrigation system each month to verify that it is working properly. Make any program adjustments required by changing field conditions.

3.8.2 Set and program automatic controllers for seasonal water requirements. Each month, check moisture of representative plants both at rootball and surrounding soil with a moisture probe or similar. Adjust system if necessary.

3.8.3 Repair damage caused by Contractor's operations. Report promptly to Contracting Officer any damage not resulting from Contractor's operations.

3.9 FINAL ACCEPTANCE

3.9.1 A preliminary inspection shall be conducted one month before the end of the maintenance period, with the Contracting Officer, to determine any deficiencies in the irrigation installation. The Contractor shall correct these deficiencies prior to the final inspection.

3.9.2 A final inspection at the end of the maintenance period shall be held with the Contracting Officer, *at which time*. ~~If the maintenance work is complete,~~ a letter acknowledging completion of the maintenance work will be issued by the Contracting Officer. With this letter, the Contractor's maintenance responsibility for the project ceases. ~~If the installation is not acceptable, the maintenance period will be extended. An extension of the Maintenance Period would apply throughout the entire project area, for all maintenance items.~~

END OF SECTION

CALSENSE IRRIGATION CONTROLLER ET2000 MAJOR COMPONENT LIST

CONTROLLER D MODEL ET2000 WITH OPTIONS INDICATED BELOW

REQ'D FOR PROJECT		MAJOR COMPONENT DESCRIPTION	PART NUMBER
YES	NO		
		CONTROLLER AND OPTIONS	
✗		ET AND MOISTURE DRIVEN IRRIGATION CONTROLLER CONTROLLER STATION QTY.: 8 12 16 24 (32) 40	ET2000
	✗	ET2000 CONTROLLER WITH INTERFACE TO READ TWO ADDITIONAL FLOW SENSORS	F
	✗	ET2000 CONTROLLER WITH HARDWARE AND SOFTWARE FOR 4 ADDITIONAL LIGHT CIRCUITS	L
✗		TRANSIENT PROTECTION BOARD FOR ET2000 CONTROLLER (TP-1) OUTDOOR ENCLOSURE BOX FOR TRANSIENT PROTECTION BOARD (TPB) AC LINE SURGE ARRESTER FOR 2P/3W, 120 VAC SYSTEMS (TP-110)	TPP
✗		INTEGRATED RADIO REMOTE RECEIVER BOARD	RR
		ENCLOSURE	
✗		STAINLESS STEEL PEDESTAL ENCLOSURE WITH FLIP-TOP AND PREASSEMBLED ASSOCIATED COMPONENTS INCLUDING DOME ANTENNA (LR-DOME-RR) FOR LOCAL RADIO AND REMOTE UNIT OPERATION	SSE-R
		SENSORS	
	✗	1" BRASS TEE MOUNTED FLOW SENSOR, 2-45 GPM, 400 PSI MAXIMUM	FM-1B
✗		1-1/4" BRASS TEE MOUNTED FLOW SENSOR, 3-90 GPM, 400 PSI MAXIMUM	FM-1.25B
	✗	1-1/2" PVC TEE MOUNTED FLOW SENSOR, 5-180 GPM, 100 PSI MAXIMUM	FM-1.5
	✗	2" BRASS TEE MOUNTED FLOW SENSOR, 10-250 GPM, 200 PSI MAXIMUM	FM-2B
	✗	2" PVC TEE MOUNTED FLOW SENSOR, 10-250 GPM, 100 PSI MAXIMUM	FM-2
	✗	3" PVC TEE MOUNTED FLOW SENSOR, 25-700 GPM, 100 PSI MAXIMUM	FM-3
		COMMUNICATION EQUIPMENT	
	✗	PHONE COMMUNICATION CAPABILITY, SINGLE CONTROLLER ONLY	R
	✗	CONTROLLER WITH EQUIPMENT TO SHARE SINGLE PHONE LINE WITH MULTIPLE CONTROLLERS, INCLUDING MOD-1 AND LA-2. CHAIN CONNECTION TO -M OPTION	MR
✗		LOCAL RADIO CAPABILITY, ONE CONTROLLER ONLY	LR
	✗	CONTROLLER WITH EQUIPMENT TO SHARE ONE RADIO WITH MULTIPLE CONTROLLERS, CHAIN CONNECTION TO -ML OPTION	MLR
✗		DOME ANTENNA WITH 4-FT CABLE FOR LOCAL RADIO AND CALSENSE MODEL RR INTEGRATED RECEIVER BOARD	LR-DOME-RR
	✗	YAGI ANTENNA FOR LOCAL RADIO	LR-YAGI
	✗	*RJ-11 PHONE JACK	VARIOUS
		CABLES	
	✗	*SHIELDED SIGNAL CABLE, MANUFACTURED BY THE PAIGE ELECTRIC COMPANY, 18 AWG, 4 CONDUCTOR (2 PAIRS), POLYETHYLENE JACKET, COLOR CODED, WITH 20 AWG DRAIN WIRE	PAIGE P-7171-D
✗		*FLOW METER WIRE, #14 AWG, UNDERGROUND FEEDER CABLE (UF) DIRECT BURIAL WIRE, SOLID, COPPER	SEE LANDSCAPE SPECIFICATION
	✗	ANTENNA CABLE INCLUDING END CONNECTORS, LENGTH AS REQUIRED	LMR-400DB
		RADIO REMOTE UNIT	
✗		RADIO REMOTE TRANSMITTER FOR CALSENSE INTEGRATED RADIO REMOTE RECEIVER BOARD	RR-TRAN
		MISCELLANEOUS	
✗		*RECEPTACLE, 2P, 3W, 20A, GROUNDING TYPE, 125V, NEMA 5-20R, GFI TYPE, HEAVY DUTY, IVORY COLOR, BACK AND SIDE WIRED	HUBBELL GF5362I
✗		SET OF 10 KEYS FOR ET2000 CONTROLLER ENCLOSURE, KEYED TO CITY OF SAN JOSE STANDARD	KEY-1
	✗	*GENERAL PURPOSE RELAY, SPDT, 24 VAC COIL, 12A	DAYTON 5X823E
	✗	*RELAY SOCKET BASE, 8 PIN, 300 VAC, 10A	DAYTON 5X852E
	✗	*TOGGLE SWITCH, 20A, SPST, 120-277 VAC, HEAVY DUTY, IVORY COLOR, BACK AND SIDE WIRED	HUBBELL HBL1221I

* ITEMS INDICATED WITH ASTERISK ARE NOT PROVIDED BY CALSENSE AND MUST BE PROVIDED BY CONTRACTOR

acre. Spread by hand, power mulch, or other approved method. Apply mulch on same day that hydroseeding is undertaken.

3.3.2 Gabion and Gabion Mattress Seeding Operations

3.3.2.1 Broadcast Seeding: Seeding shall be uniformly broadcast by hand, mechanical hand seeder, combination seed spreader and cultipacker, or other approved equipment at the rates specified.

3.3.2.2 Fertilizer: apply fertilizer at rates specified.

3.3.2.3 Erosion Control Blanket: Coordinate completion of erosion control blanket installation.

3.3.2.4 Water: Water as specified in paragraph 3.4.6.

3.3.3 Clean-up

Remove equipment, surplus material, and debris and trash resulting from seeding operations upon completion. Clean adjacent paved areas.

3.3.4 Protection

Immediately after hydroseeding, the area shall be protected against traffic or other use by erecting barricades and providing signage as required, or as directed by the Contracting Officer.

3.4 SEEDING MAINTENANCE

The Contractor shall provide maintenance of the seeded areas from the completion of seeding to the date of final acceptance of the overall project (as determined by the Contracting Officer) and for a maintenance period of 12 months from the date of final acceptance of the overall project. The only exception shall be for seeding installed as a part of Sobrato restoration work, which shall be maintained by the Contractor for 12-months after acceptance of Sobrato restoration work by the Contracting Officer.

~~The Contractor shall provide maintenance of the seeded areas throughout the maintenance period. The maintenance period begins immediately following completion of seeding operations and continues for a period of 36 months.~~ Maintenance includes replacement (removal and reseeding) of unhealthy or dead sections of seeding areas, weed control, pest control, mowing, fertilization, and watering. *Seeding maintenance for Sobrato restoration work shall be coordinated with Sobrato.*

3.4.1 Weed Control

Weeds are those plants which are not the plants specified to be installed in this contract. Contractor

shall remove weeds as soon as they are identified. At least once a month, eliminate all weeds throughout the site. Remove weeds by spraying new weed growth with a biodegradable systemic contact herbicide per manufacturer's recommendations, or by hand weeding.

3.4.2 Reseeding

The Contractor shall reseed all hydroseeded areas larger than one foot square where soil is bare or where plants are not in vigorous thriving condition as determined by the Contracting Officer. Reseeding shall be completed within 7 days of notification by the Contracting Officer.

3.4.3 Pest Control

Inspect hydroseeded areas for signs of stress or damage from insects, fungus, rodents or other agents. Spray with insecticides, fungicides, rodenticides or as required. Spraying shall be by qualified personnel. Pesticide shall be labeled for use and applied only as registered by the EPA.

3.4.4 Mowing

Tall fescue areas are to be mowed regularly to maintain 2 inch leaves, removing no more than 1 inch of top growth in any mowing.

3.4.5 Fertilization

A low-nitrogen carrier fertilizer shall be applied according to the soils report at the end of the first month and at the end of the sixth month of the maintenance period. For bid purposes, assume application at the rate of 15 pounds per 1,000 square feet.

3.4.6 Watering

As part of the seeding maintenance, the Contractor shall water grasses at intervals to obtain a moist soil condition that encourages deep rooting. Prevent run off, puddling and wilting. Initial watering shall be frequent enough to maintain constant soil moisture to enable seed germination. Provide daily watering for first two weeks, depending on weather conditions. Subsequently water twice per week until grass is established. Failures in irrigation system shall not relieve Contractor from applying water as required.

3.4.7 Inspection

Inspect site at monthly intervals, and immediately after storm to check for potential trouble from erosion. Where erosion is due to lack of vegetation cover, repair damage. Where damage is due to other factors, inform Contracting Officer immediately.

3.4.8 Maintenance Report

Furnish a written record to the Contracting Officer of all maintenance operations.

3.5 FINAL ACCEPTANCE

3.5.1 A preliminary inspection shall be conducted one month before the end of the maintenance period, with the Contracting Officer to determine any deficiencies in the hydroseeding installation. Deficiencies include, but are not limited to bare areas larger than 8" square or areas where the plants are not in a vigorous thriving condition. These deficiencies shall be corrected by the Contractor prior to the final inspection.

3.5.2 A final inspection at the end of the maintenance period shall be held with the Contracting Officer, *at which time*. ~~If the hydroseeding installation and other maintenance period requirements are acceptable,~~ a letter acknowledging completion of the maintenance work will be issued by the Contracting Officer. With this letter, the Contractor's maintenance responsibility for the project ceases. ~~If any installation is not acceptable, the maintenance period will be extended. The maintenance responsibilities include maintenance of the irrigation systems and planting installations in addition to seeding. Therefore, if the maintenance period extends work in any of these areas, it extends work in all of these areas.~~

3.6 ~~WARRANTY~~

3.6.1 ~~The Contractor shall warrant all seeded turf areas and turf at gabions to be healthy and in vigorous active growth for a period of 6 months after completion of maintenance period. Warranty does not include turf installation over cellular concrete mat. Turf areas not in healthy or vigorous condition shall be treated per paragraph 3.3 above. The Contractor shall not be held responsible for failure due to vandalism during the warranty period.~~

END OF SECTION

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SECTION 02950

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SECTION 02950

PLANTING

PART 1 GENERAL

1.1 SUMMARY

The work specified in this section covers, but is not limited to requirements for providing, and installing planting, inspecting planting materials, and maintaining planting.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. The latest edition available as of the date of the Notice of Inviting Bids shall be used.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z60.1 American Standard for Nursery Stock

FEDERAL SPECIFICATIONS (FS)

FS 0-F-241 (Rev D) Fertilizers, Mixed, Commercial

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330; SUBMITTAL PROCEDURES:

SD-07, Schedules

Application of Pesticide Material; FIO.

A list of the proposed pesticide application equipment to be used in performance of the planting work, including descriptive data and calibration tests.

Delivery; FIO.

Delivery Schedule at least 10 days prior to the intended date of the first delivery.

SD-08 Pesticide Treatment Plan Statements

Pesticide Treatment Plan, giving proposed sequence of pesticide treatment work, before work is started. The pesticide trade name, chemical composition, formulation, concentration, application rate of active ingredients and methods of application for all materials furnished, and the name and state license number of the state certified applicator shall be included. Submit before starting planting.

SD-09 Reports

Percolation Test; FIO.

Maintenance Period; FIO. Maintenance Report; GA.

- a. Maintenance Report. Written record of maintenance work performed and quantity of plant losses and replacements.
- b. Maintenance Period. Written calendar time period for the beginning of the plant establishment period.

SD-14 Samples

- a. Plant Material Photos; submit photos of trees to Contracting Officer prior to nursery inspection
- b. Bark Mulch; GA

1.4 SOURCE INSPECTIONS

1.4.1 Contract Grown Plant Materials

Contract Grown Plant Material furnished by the Army Corps of Engineers, (see Drawings for these quantities), must be inspected and approved for use by the Contractor. Once material has been approved, the plant material falls under the same warranties as commercially grown stock.

1.4.2 Commercially Grown Plant Materials

Commercially grown plant materials shall be inspected at the nursery and growing site by the Contracting Officer and San Jose Redevelopment Agency arborist. Photos must be supplied of all trees that are located in nurseries to be inspected by the Contracting Officer.

1.5 SHIPMENT, DELIVERY, INSPECTION, STORAGE, AND HANDLING

1.5.1 Shipment

1.5.1.1 Preparation

Digging and preparation for shipment shall be done in a manner that will not cause shock or damage to branches, trunk, or root systems.

a. Container-Grown Plants: Container size shall be provided as recommended by ANSI Z60.1. Plants shall be grown in a container sufficiently long for new fibrous roots to have developed and for root mass to retain its shape and hold together when removed from container. Container shall be sufficiently rigid to hold ball shape and protect root mass during shipping.

1.5.1.2 Anti-desiccant Application

Plants shall be sprayed with an anti-desiccant as leaf budding occurs or when plant material has soft growth.

1.5.2 Delivery

1.5.2.1 Contract Grown Plant Material

Plants designated as “Contract Grown” on the drawings will be delivered to the job site when the contractor is ready for the delivery of said plants. Contact the Contracting Officer for coordination.

1.5.2.2 Identification

Plants shall be identified with durable waterproof labels and weather-resistant ink. Plants shall have attached labels stating the correct plant name and size.

1.5.2.3 Protection During Delivery

Plants shall be protected during delivery to prevent desiccation of the plant or damage to the roots or balls. Branches of plants shall be protected by tying-in the branches and covering all exposed branches.

1.5.2.4 Pesticide

Pesticide materials shall be delivered to the site in the original unopened containers bearing legible labels indicating the Environmental Protection Agency (EPA) registration numbers and the registered uses.

1.5.3 Inspection

Plant material shall be inspected upon arrival at the jobsite by the Contracting Officer for conformity to the paragraph 2.1 and paragraph 1.4, and any unacceptable plant material shall be removed from the jobsite.

1.5.4. Plant Storage

Plants not installed on the day of arrival at the site shall be stored and protected in areas designated by the Contracting Officer. Plants shall be protected from exposure to wind and shall be shaded from the sun. Covering that will allow air to circulate and prevent internal heat from building up shall be provided. All plants shall be kept in a moist condition until planted.

1.5.5 Handling

Care shall be taken to avoid injury to plants. Materials shall not be dropped from vehicles. Container-grown plants shall be handled by the container. Plants shall not be handled by the trunk or stems.

PART 2 PRODUCTS

2.1 PLANTS

2.1.1 Varieties

Plants shall be nursery grown or plantation grown stock conforming to ANSI Z60.1 and shall be of the varieties specified in the plant list bearing botanical names listed in one or more of the publications listed under "Nomenclature" in ANSI Z60.1.

2.1.2 Substitutions

Substitutions will not be permitted without written request from the Contractor for approval by the Contracting Officer.

2.1.3 Growing Conditions

Plants shall be grown under climatic conditions similar to those in the locality of the project.

2.1.4 Sod

Sod Type A shall be Enduro Blend” Dwarf Tall Fescue Mix (Greenfields Turf Inc. possible vendor). Sod to be provided in rolls that can be handled, lifted, and moved without substantial breaking or tearing. Sod shall be cut by machine to a soil thickness of between 1/4 and 5/8 inch, not including top

growth or thatch. Size of rolls shall be consistent to the supplier's standard width and length and is not to vary by more than 2% in either dimension.

Sod Type B shall be Pacific Sod's Medallion, to match Sobrato property turf.

2.1.5 Tree Quality

Well shaped, well grown, vigorous, healthy plants having healthy and well branched root systems shall be provided. Plants shall be provided free from disease, harmful insects and insect eggs, sun-scald injury, disfigurement and abrasion. Plants shall be provided that are typical of the species or variety and conforming to standards as set forth in ANSI Z60.1 and as specified herein. Trees shall be inspected and tagged at the nursery by the Contracting Officer. Do not prune trees after tagging. Trees pruned after tagging will not be accepted.

2.1.5.2 Shade and Flowering Trees

A height relationship to caliper shall be provided as recommended by ANSI Z60.1. Height of branching should bear a relationship to the size and variety of tree specified and with the crown in good balance with the trunk. Trees shall not be "poled" or the leader removed.

a. Single stem (15 gallon): Trunk shall be reasonably straight and symmetrical with crown and have a persistent main leader.

b. Multi-stem: Not Acceptable.

c. Specimen (24, 36 and 48 inch box): A plant shall be provided that is well branched and pruned naturally according to the species. The form of growth desired, which may not be in accordance with natural growth habit, shall be as indicated.

2.1.5.2 Broadleaf Evergreen

Plants shall be provided that have ratio of height-to-spread as recommended by ANSI Z60.1. An acceptable plant shall be well shaped and recognized by the trade as typical for the variety grown in the region.

2.1.6 Size

Plants shall be furnished in sizes as indicated on Drawings. Plants larger in size than specified may be provided at no additional cost to the Government.

2.1.7 Measurement

Plant measurements shall be in accordance with ANSI Z60.1.

2.2 STAKING MATERIAL

2.2.1 Wood Stakes (15 gallon)

Stakes for supporting 15 gallon trees shall be of sound wood capable of standing in the ground for 2 years. They shall be treated lodgepole stakes no less than 2 inches in diameter and 8 feet in length. Chamfered top and bottom.

2.2.2 Wood Stakes (Box)

Stakes for supporting 24", 36" and 48" box trees with calipers 2" or greater shall be of sound wood capable of standing in the ground for 2 years. They shall be treated lodgepole stakes no less than 3 inches in diameter and 10 feet in length. Chamfered top and bottom. Contracting officer shall have discretion to eliminate staking on larger material.

2.2.3 Tree Ties for 15 G.C. and 24" Box Trees

Flat woven tape constructed of high tenacity synthetic fiber, polypropylene or nylon, white, no print, 3/4 inch minimum width, breaking strength of 900 pounds.

2.2.4 Tree Ties for 36" Box Trees

Tree ties shall be corded rubber tree straps as manufactured by "Gro-Strait" or approved equal. Ties shall be located as indicated on 36" Tree Staking detail.

2.3 CONTROLLED RELEASE FERTILIZER TABLETS

Physical properties as follows: A highly compressed homogeneous tablet weighing 7 grams.

Chemical properties as follows: 12-8-8 Slow Release Nitrogen 12 percent, Phosphate 8 percent, Potash 8 percent, Humus 20 percent, humic Acids 4 percent, Iron 2 percent, Sulfur 3.5 percent.

2.4 WATER

Water shall not contain elements toxic to plant life.

2.5 ANTI-DESICCANT

Anti-desiccant shall be an emulsion that will provide a film over plant surfaces permeable enough to permit transpiration, and shall not damage the plant.

2.6 TREE WOUND DRESSING

Tree wound dressing is not allowed.

2.7 PESTICIDE

Pesticide shall be insecticide, herbicide, fungicide, nematocide, rodenticide, and miticide. Pesticide material shall be labeled for use and applied only as registered by EPA and approved herbicide, insecticide, and fungicide.

2.8 GEOTEXTILE FILTER FABRIC

Filter Fabric Type II as specified in Section 02215; GEOTEXTILE FILTER FABRIC.

2.9 EROSION CONTROL FABRIC

As specified in Section number 02272, EROSION CONTROL FABRIC

2.10 MULCH

Fir or pine bark chips, dark in color, 3/4-inch to 1-inch.

2.11 PRE-EMERGENCE WEED KILLER

Clean non-staining as recommended by a licensed pest control specialist

2.12 ROOT CONTROL BARRIER

2' high x 8' long root control barrier with root inhibitor by Biobarrier (Reemay, Inc., 1-800-284-2780), or equal. Root barriers shall be installed on all trees within 10' of pavement, vertical walls, concrete curbs, or culvert walls.

2.13 PERFORATED/SOLID DRAIN PIPE FOR TREE INSTALLATION IN CRUSHED ROCK

Polyvinyl Chloride (PVC) pipe and pipe fittings shall meet extra strength minimum of SDR-35 of the requirements of ASTM Specification D3034.

2.14 PERMEABLE BACKFILL (FILTER ROCK):

Permeable backfill used in subsurface drain installations for tree installation in crushed rock to be Class 2 permeable material in conformance with Section 68 "Subsurface Drains" of the Standard Specifications; gradation to 3/4" maximum size.

2.15 STEEL EDGING

Steel, 3/16" thick by 4" deep painted dark green, 15" stakes at 30" o.c.

PART 3 EXECUTION**3.1 EXAMINATION****3.1.1 Verify Grades**

The Contracting Officer will verify completion of soil preparation and finish grading as specified in Section 02920; SOIL PREPARATION.

3.1.2 Underground Obstructions to Planting

The location of underground utilities and facilities shall be verified. Damage to underground utilities and facilities shall be repaired at the Contractor's expense.

3.2 SITE PREPARATION**3.2.1 Layout**

Tree planting locations shall be flagged and staked for approval prior to excavating the planting pits. No offsets shall be used. Each tree species shall be marked with a different color flag. The Contracting Officer may adjust plant material locations to meet field conditions. The Contractor shall give at least two days notice prior to the date desired for inspection by the Contracting Officer. Unless otherwise specified on the Drawings, no tree shall be planted less than 4 feet from a service road. Coordinate layout of trees in gabions and gabion mattresses with gabion and irrigation system installation.

3.3 PLANTING EXCAVATION

3.3.1 Obstructions Below Ground or Poor Drainage

When obstructions below ground or poor drainage affect the planting operation, proposed adjustments to plant location, type of plant and planting method or drainage correction shall be submitted to and approved by the Contracting Officer.

3.3.2 Earth Planting Pits

All plant pits and trenches shall be excavated in accordance with the Planting Details after approval of staked locations by the Contracting Officer. Excavate plant pits as indicated on Drawings.

3.3.3 Gabion Plant Pits

Gabions tree planting pits shall be identified during gabion assembly and backfilled with tree and shrub backfill as specified in Section 02920; SOIL PREPARATION. Remove all rock placed in the gabion cell identified for tree planting and approved by the Contracting Officer according to paragraph 3.2.1 Layout. Place wire mesh diaphragm in gabion plant pits and backfill with tree backfill. Compact the tree setting bed to 95 percent maximum density. Confirm that the depth of the setting bed is at the level required for final tree setting, as indicated on the Drawings.

3.3.4 Gabion Mattress Pits

Coordinate a 3 foot by 3 foot square opening in the gabion mattress during gabion construction. Confirm the installation of diaphragms on all four sides of the openings in gabion mattresses. Cut and remove filter fabric from tree pits. Compact tree setting bed to 95 percent of ASTM D 1557. Confirm that the depth of the setting bed is at the level required for final tree setting as indicated on the Drawings.

3.4 PERCOLATION TEST

Test twenty percent of tree pits evenly distributed throughout the planting locations for positive drainage. Fill test tree pits with 8" of water. Notify the Contracting Officer in writing of test pits that will not completely drain in two hours. If the Contracting Officer determines that the planting location cannot be changed, submit cost required to create positive drainage. Proceed with work after acceptance by Contracting Officer.

3.5 PLANTING TIMES AND CONDITIONS

The recommended planting times for trees are in the Spring after the last chance of frost and in the fall before the chance of the first frost. Contractor shall schedule planting in the mornings on days expected to be 90 degrees Fahrenheit or greater to avoid stressing plants during installation.

3.5.1 Planting Conditions

Planting operations shall be performed only during periods when beneficial results can be obtained. When drought, excessive moisture or other unsatisfactory conditions prevail, the work shall be stopped when directed. When special conditions warrant a variance to the planting operations, proposed planting times shall be submitted to and approved by the Contracting Officer.

3.6 INSTALLATION

Installation of turf and shrubs shall be completed 30 days prior to the beginning of the maintenance period. See Section 3.13 Maintenance Period.

3.6.1 Tree and Shrub Backfill

The backfill soil mixture shall be as per Soils Report recommendations, as defined in Section 02920; SOIL PREPARATION.

3.6.2 Pre-emergence weed killer

Apply pre-emergence weed killer in all areas to receive ground cover planting except as noted on plans. Work shall be done under the supervision of a person licensed by the State of California as a pest control applicator and holding a qualified applicator license or a Qualified Applicator Certificate. Obtain approval of the finish grades prior to applying weed killer and coordinate planting and watering with the pest control specialist prior to planting. Take care to keep weed killer off areas to be seeded.

3.6.3 Setting Trees

Setting trees in pit with central leader plumb. When set, place additional backfill around base and sides of rootball and work to eliminate voids. When excavation is approximately 2/3 full, water thoroughly before placing remainder of backfill. For trees planted in earth, restore grades around the tree to tolerance established in Section 02920; SOIL PREPARATION. For trees planted in gabion mattress, lace perimeter of opening in wire mesh with wire and tie off. Set trees in gabions and gabion mattresses prior to installation of groundcover planting mat and seeding.

3.6.4 Controlled-Release Fertilizer

Prior to the conclusion of planting backfill operations for each planting pit, fertilizer tablets or packets shall be inserted into the backfill soil at equal distances from each other and the tree rootball, and tablets shall be allotted as follow:

60 inch Box Tree	10 tablets
48 inch Box Tree:	8 tablets
36 inch Box Tree:	6 tablets.
24 inch Box Tree:	4 tablets.
15 gallon Trees :	3 tablets.

3.6.5 Container-Grown Trees

Non-biodegradable containers or platforms shall be removed without damage to the plant or root system. Biodegradable containers shall be split.

3.6.6 Staking

Trees in the gabions and turf areas shall be staked as shown on drawings.

3.6.6.1 Tree Ties

Tie trees as indicated on the Drawings.

3.6.6.2 Staking

Stake trees as shown on the Drawings.

3.6.6.3 1 Gallon Plant Installation

Cut a clean 3-inch opening in the erosion control blanket. Create planting hole equal to the dimension of the plant container and install plant. Hand compact around each plant and water.

3.6.6.4 Bark Mulch Installation

Mulch all tree, shrub and ground cover areas with organic mulch to a 3-inch depth. Hold bark mulch away from base (trunk) of plant 4" or as directed by the Contracting Officer. No mulch is required around trees in turf areas.

3.7 SOD INSTALLATION

Lightly roll surface and re-shape to level humps and hollows. Secure Contracting Officer's approval prior to sodding. Do not sod on dry soil. Lay first strip of sod along a straight line (use a string in irregular areas). Butt joints tightly, do not overlap edges. On second strip, stagger joints. Use a sharp knife to cut sod to fit curves, edges and sprinkler heads. When a

conveniently large area has been sodded, water lightly to prevent drying. Continue to sod and to water until installation is complete. After laying all sod, roll lightly to eliminate irregularities and to form good contact between sod and soil. Avoid a heavy roller and excessive initial watering. Thoroughly water the completed sod surface to at least 8 inches deep. Repeat sprinkling at regular intervals to keep sod moist at all times until rooted. After sod is established, decrease frequency and increase amount of water per application.

3.8 FINISHING

3.8.1 Planting Areas

Planting areas shall be uniformly edged to provide a clear-cut division line between the turf and the adjacent planting areas.

3.8.2 Pruning

Pruning shall be limited to the minimum necessary for removal of injured twigs and branches.

3.8.3 Water

All plants shall be watered immediately upon planting, and as necessary to maintain an adequate supply of moisture within the root zone and promote deep rooting. Irrigation system shall be in operation before completion of plantings. Run-off, puddling and wilting shall be prevented.

3.8.4 Antidesiccant Application

Plants requiring further protection shall be sprayed with anti-desiccant in accordance with manufacturer's recommendations.

3.9 MAINTENANCE DURING PLANTING OPERATION

Installed plants shall be maintained in a healthy growing condition. Maintenance operations shall begin immediately after each tree, *shrub, vine and turf* is installed and shall continue throughout the maintenance period. The maintenance includes watering, pruning, straightening and other necessary operations. Plant beds and basins shall be kept free of weeds, grass and other undesired vegetation. Plants shall be checked for settlement and shall be reset to proper grade as necessary. Run-off, puddling and wilting shall be prevented.

3.10 CARE OF EXISTING PLANT MATERIAL

Refer to Section 01354; ENVIRONMENTAL PROTECTION, and Section 01500; GENERAL

REQUIREMENTS.

3.11 APPLICATION OF PESTICIDE MATERIAL

When pesticide becomes necessary to remove a disease or pest, a state-certified applicator shall apply required pesticide in accordance with State EPA label restrictions and recommendations. Hydraulic equipment shall be provided for the liquid application of pesticides with a leak-proof tank, positive agitation methods, controlled application pressure and metering gauges. A pesticide treatment plan shall be provided to the Contracting Officer as specified in paragraph 1.3.

3.12 RESTORATION AND CLEAN UP

3.12.1 Restoration

Pavements and facilities that have been damaged from the planting operation shall be restored to original condition at the Contractor's expense. Refer to Section 01500; GENERAL REQUIREMENTS.

3.12.2 Clean Up

Excess and waste material from the planting operation shall be removed and disposed of off the site. Adjacent paved areas shall be cleared.

3.13 MAINTENANCE PERIOD

The Contractor shall provide maintenance of planting and landscaping ~~throughout the maintenance period~~ **from the completion of installation to the date of final acceptance of the overall project (as determined by the Contracting Officer) and for a maintenance period of 12 months from the date of final acceptance. The only exception shall be for the planting and landscaping installed during Sobrato restoration work, which shall be maintained by the Contractor for 12-months after acceptance of Sobrato restoration work by the Contracting Officer. Installation of turf and shrubs shall be completed 30 days prior to the beginning of the maintenance period.** ~~The maintenance period begins after final acceptance of the entire contract as determined by the Contracting Officer. The maintenance period continues for 36 months after acceptance.~~ Maintenance includes replacement of unhealthy or dead plants, weed control, fertilization, resetting trees to proper grade or upright position, watering, pest control, tree replacement due to vandalism, security measures to prevent vandalism, and the preparation of maintenance reports. **Landscaping within the project site shall be fenced for the first 60 days duration of the maintenance period. Maintenance of planting and landscaping for Sobrato restoration work shall be coordinated with Sobrato.**

3.13.1 Replacement of Unhealthy or Dead Plants

A plant shall be considered unhealthy or dead when the main leader has died back or 25 percent of the crown is dead, or when plant is defoliated (or with substantial leaf burn) due to drought stress, or with discolored foliage indicative of root rot or salt toxicity. Unhealthy or dead plants shall be removed immediately and shall be replaced as soon as seasonal conditions permit with plants of same size diameter and species.

3.13.2 Weed Control

Use only recommended and legally approved herbicides. Avoid frequent soil cultivation that destroys shallow roots and breaks seal of pre-emergent herbicides.

3.13.3 Fertilization

Fertilize each tree with granular form 16.6.8 fertilizer fertilizer on once per year during maintenance period at rate of 1/2 cup for 5 gallon plant and 1 cup per 15 gallon or larger plant by evenly distributing fertilizer on the surface of the rootball and in the watering basins.

3.13.4 Resetting Trees

Reset trees to proper grade or upright position.

3.13.5 Watering

Water trees as required. Failures in irrigation system shall not relieve the Contractor from applying water as required.

3.13.6 Pest Control

Inspect trees and plants for signs of stress or damage from insects, fungus, rodents or other agents. Spray with insecticides, fungicides, rodenticide or as required. Spraying shall be by qualified personnel. Pesticide shall be labeled for use and applied only as registered by the EPA.

3.13.7 Maintenance Reports

Furnish a written record of all maintenance operations to the Contracting Officer in accordance with paragraph 1.2.

3.13.8 Removal of Stakes and Ties

Removal of stakes and ties from trees just prior to inspection for final acceptance of the Maintenance Period. Dispose of all stakes and ties.

3.13.9 Turf Maintenance

Maintain sod during the entire establishment and maintenance period. Cut as frequently as growth of grass requires. Cut to a height of two inches (2"), unless otherwise directed by the Contracting Officer. Trim edges of turf at paving and headerboards at time of second cutting, and at each later cutting. Keep a 2-foot diameter area at tree trunk free of turf at all times to serve as a mowing band. Do not create low area around base of tree. Keep turf areas free of undesirable weeds and grasses by the application of suitable selective weed killers or hand pulling. Resod all damaged areas as soon as evident. Repair any hollow, settled or eroded areas by filling, rolling and resodding.

3.14 FINAL ACCEPTANCE

3.14.1 A preliminary inspection with the Contracting Officer shall be conducted one month before the end of the maintenance period, to determine any deficiencies in the planting and landscaping installation. Deficiencies include any tree or other plant which is not healthy. The Contractor shall correct these deficiencies.

3.14.2 A final inspection at the end of the maintenance period shall be held with the Contracting Officer, *at which time*. ~~If the planting and landscaping installation is acceptable,~~ a letter acknowledging completion of the maintenance work will be issued by the Contracting Officer. With this letter, the Contractor's maintenance responsibility for the project ceases. ~~If the installation is not acceptable, the maintenance period will be extended. The maintenance work includes work on irrigation and turf installations; if a maintenance period extension is directed due to deficiencies in any of these areas, the extension will apply to all elements of maintenance work.~~

3.15 WARRANTY AND REPLACEMENT

The warranty period ~~begins at the end of the maintenance period~~ *shall be 12 months and shall be concurrent with the maintenance period.* ~~The warranty period continues for 6 months.~~ During the warranty period, trees, *shrubs, vines and turf* shall be healthy. Any ~~trees~~ *plants* that are not healthy shall be replaced ~~promptly~~ within *two weeks* by the Contractor. Replacements shall be of same species and size and where in a formal arrangement where the trees are matched in size, spread and character, replacements shall be of same size, spread and character as the other trees in the formal arrangement. ~~A six (6) month maintenance period shall also be provided for each replacement tree, beginning after the planting of a replacement tree.~~

END OF SECTION

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SECTION 13156

POOL GENERAL

PART 1 GENERAL

1.1 SUMMARY

The work specified in this section covers, but is not limited to, construction of a reflecting pool, for the 'Pool Of Genes' and includes the water filtration system, distribution and piping systems, coordination for proper interface between water feature mechanical and related waterproofing, structural, finish and water feature systems. Also include are: Excavation and backfill for related piping; Provision of related electrical equipment, motors and controls; Connection to electrical; Coordination and connection of water, sewer, and other required services; Coordination with the work of other trades and contractors: Start-up maintenance, training, mechanical record drawings and maintenance manuals.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications form part of the specifications and are referred to in the text by the basic designation only. The latest addition available as of the date of the Notice of Inviting Bids shall be used.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI).

AMERICAN SOCIETY FOR TESTING MATERIALS (ASTM)

C 267 Chemical Resistance of Mortars

C 39 Compressive Strength of Cylindrical Concrete Specimens

CITY OF SAN JOSE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

CITY OF SAN JOSE STANDARD PLAN DETAILS FOR PUBLIC WORKS CONSTRUCTION

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA):
NFPA 70 National Electrical Code.(NEC)

NSF NATIONAL SANITARY FOUNDATION, INTERNATIONAL: ANSI/NSF 50
Circulation System Components and Related Materials for Swimming Pools, Spas/Hot tubs

UNIFORM BUILDING CODE, (UBC).

UNIFORM PLUMBING CODE, (UPC).

US ARMY CORPS OF ENGINEERS
CRD C48-73 ' Permeability of Concrete'

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330; SUBMITTAL PROCEDURES:

SD-01 Data

Product data, GA

Product data, including manufacturer's descriptive literature and installation instructions, FIO

SD-04 Drawings

Layout drawings confirming interrelationships and coordination with final locations of project elements, GA

SD-19 Operation and Maintenance Manuals, FIO

Manufacturer's parts list, maintenance and operating instructions, FIO

1.4 QUALITY ASSURANCE

1.4.1 Equipment installation is to be performed by tradesmen experienced in the installation of the specific equipment. No allowance shall be made for lack of experience on the part of the installer.

1.4.2 In addition to all other required guarantees or warranties, guarantee all products of this Section for a period of ~~three years~~ ***one year following date of final acceptance of the overall project (as determined by the Contracting Officer).***

1.5 PRODUCT HANDLING

1.5.1 Deliver all materials to the job site in manufacturers' original unopened containers with all labels intact and legible.

1.5.2 Store all materials under cover in a manner to prevent damage and contamination, and store only the specified materials at the job site.

1.5.3 In the event of damage, immediately make all repairs and replacements necessary at no additional cost to the Contracting Officer.

1.6 OPERATION AND MAINTENANCE MANUAL

Contractor shall assemble and prepare an Operation and Maintenance Manual(s) for the facility which shall provide at least the following for each of the major feature or mechanical rooms:

1.6.1 A general narrative description of the features and systems.

1.6.2 A general discussion of water feature maintenance, including water Chemistry, water quality, biological maintenance, finishes and any important elements requiring special attention.

1.6.3 A specific description of each of the features' major system mechanical/electrical components.

1.6.4 A reduced layout of the mechanical room plan(s), mechanical schematics, piping plan(s) and equipment lists.

1.6.5 A Troubleshooting Guide.

1.6.6 Copies of equipment manufacturer's installation, operation and maintenance instructions, cross-indexed to the lists and plans above

PART 2 - PRODUCTS

2.1 ELECTRICAL EQUIPMENT

2.1.1 Electrical:

Electrical motor driven equipment specified herein shall be provided with motors. Conform to Divisions 15 and 16. Electrical characteristics shall be as indicated. Each motor shall be of sufficient capacity to drive the equipment at the specified capacity without exceeding the nameplate rating of the motor. Motors may be open drip-proof, normal service, 15% minimum service factor, unless noted otherwise. Motor control center, motor starters, required manual or automatic control, protective and signal devices, and control wiring shall be provided. Electrical distribution panels, line voltage conductors, conduit and connection to MCC and electrical panels and equipment by Electrical. Coordinate for installation.

2.1.2 Bonding

Comply with NEC 680 specifically as it relates to bonding of pool shell and equipment. Contractor is responsible for verification of quantities and equipment. All equipment requiring NSF or UL listing shall be so listed.

2.2 WATER FEATURES MATERIAL AND EQUIPMENT

Water Feature Materials and Equipment: As indicated on drawings. All construction materials and equipment are to be first quality and of a new condition, unless noted otherwise.

2.3 WATERPROOFING

Cementitious Crystalline Waterproofing, 'Xypex' (Available from Xypex Chemical Corporation 1-800-961-4477) or approved equal – blend of portland cement, fine treated silica sand and active proprietary chemicals that cause a catalytic reaction which generates a non-soluble crystalline formation of dendritic fibers within the pores and capillary tracts of concrete. This process causes concrete to become permanently sealed against penetration of liquids in any direction

2.3.1 Crystalline Penetration

Crystallizing capability of waterproofing material shall be evidenced by independent scanning Electronic Microscope photographs documenting penetration of waterproofing material to a depth of 2 inches.

2.3.2 Permeability

Independent testing shall be performed according to US Army Corps of Engineers CRD C48-73 'Permeability of Concrete'. Concrete samples to have a design strength of 4000 psi and thickness of 2 inches. Coatings to have maximum thickness of .05 inches per coat with up to two coats permitted. Samples to be pressure tested to 175 psi. Treated samples, after crystalline growth has occurred shall exhibit no measurable leakage.

2.3.3 Chemical Resistance

Independent testing shall be performed on the product according to ASTM C 267 and ASTM C 39. Untreated and treated specimens to be immersed for a minimum of 84 days in the following chemical solutions: Hydrochloric acid, brake fluid, transformer oil, ethylene glycol toluene, caustic soda. Treated specimens to show no detrimental effects after exposure and shall have a minimum of 14% increase in compressive strength versus untreated control specimens.

PART 3 EXECUTION

3.1 SURFACE CONDITIONS

3.1.1 Inspection:

Prior to commencing the Work of this Section, carefully inspect the installed Work of other trades and verify that all such Work is complete to the point where this installation may properly commence. Do not proceed with installation in areas of discrepancy until all such discrepancies

have been resolved.

Confirm the layout, elevations and dimensions of the Water Features before commencing.

3.2 PIPE TRENCHING AND BACKFILL:

3.2.1 Trench Depth

Where trenching is required, trench as required to allow for the elevations shown on the drawings. Where elevations are not shown on the drawings, trench to sufficient depth to give a minimum 150 mm (6") of fill below the pipes, and a minimum 450 mm (18") of fill above the top of the pipe to grade, or 300 mm (12") to the underside of a concrete slab.

3.2.2 Grading of trenches

Grade the trench bottoms to provide a smooth, firm and stable foundation free of rock points throughout the length of pipe. Place a minimum of 150 mm (6") of approved cohesionless material in the bottom of the trench.

3.2.3 Bedding Material

3.2.3.1 Place the approved cohesionless material in the trench, simultaneously on each side of the pipe for the full width of the trench, to a maximum depth of 300 mm (12").

3.2.3.2 Densify the cohesionless bedding material after placing by compaction and vibration. Do not jet on top of structures or where no drainage has been provided. Compact in 150 mm - 300 mm (6"-12") maximum lifts by 95% minimum relative compaction, or as approved by the Architect.

3.2.3.3 Take special care to provided firm support to the underside of the pipe and fittings for the length of the pipe.

3.2.3.4 Other bedding produce and materials may be used if prior written approval has been obtained for the Engineer.

3.2.3.5 Refer to piping notes for additional information.

3.2.4 Clearances

Maintain a minimum of 50 mm (6") clear between pipes and a minimum embedment of 450 mm (18") in planting and feature areas, and as noted in concrete trenches in raft slab, and as noted in the drawings.

3.3 INSTALLATION

Install all items of Water Feature equipment in accordance with applicable Codes and regulations, and the manufacturer's recommendations. All equipment shall be anchored firmly and securely for long life under hard use. All concrete embedded fittings shall be set plumb and flush. Carefully establish and follow the required horizontal and vertical elevations to ensure proper and adequate space for the work and materials of other trades. The site is to be maintained in an organized and clean condition. Coordinate the work with the work of other trades.

3.4 WATERPROOFING

Apply Cememtitous Crystalline Waterproofing System to concrete according to Manufacturer's instructions.

3.5 CLEAN-UP

Maintain the Site in a clean and orderly condition. Upon completion of the Work, remove from the Job Site all debris, refuse and equipment arising from the Work of this Section.

3.6 OPERATIONS AND MAINTENANCE

3.6.1 *The Contractor shall be responsible for start up, operations, and provide maintenance for all Water Features and related Mechanical, Filtration and Water Treatment from the completion of system installation to the date of final acceptance of the overall project (as determined by the Contracting Officer) and for a maintenance period of 12 months from the date of final acceptance of the overall project.* ~~Contractor shall be responsible for start up, operations, and maintenance of all Water Features and related Mechanical, Filtration and Water Treatment Systems for a period of not less than 3 years.~~ During such period, the Features are to be maintained in a clean and chemically balanced condition, until Contracting Officer acceptance.

3.6.2 Flush Water Feature systems to insure they are free of all contaminants.

3.6.3 Test the water prior to filling and balance immediately upon filling to achieve a pH of between 7.6 and 7.8, a Calcium Hardness of 200 ppm, and a Total Alkalinity of 100 ppm. Pools shall be maintained with free chlorine/bromine residuals of 1.0 mg/L (ppm). Balancing to be achieved with chemicals in addition to those to be delivered to the Contracting Officer as required by these Specifications.

3.7 OPERATION & MAINTENANCE MANUAL AND INSTRUCTION

Upon ~~Substantial Completion and acceptance by the Contracting Officer~~ *completion of the maintenance period* carefully instruct the Owner's Maintenance Personnel in the proper operation

and maintenance of the installed equipment and water features and in the best use of the Manual as a maintenance and replacement guide.

END OF SECTION